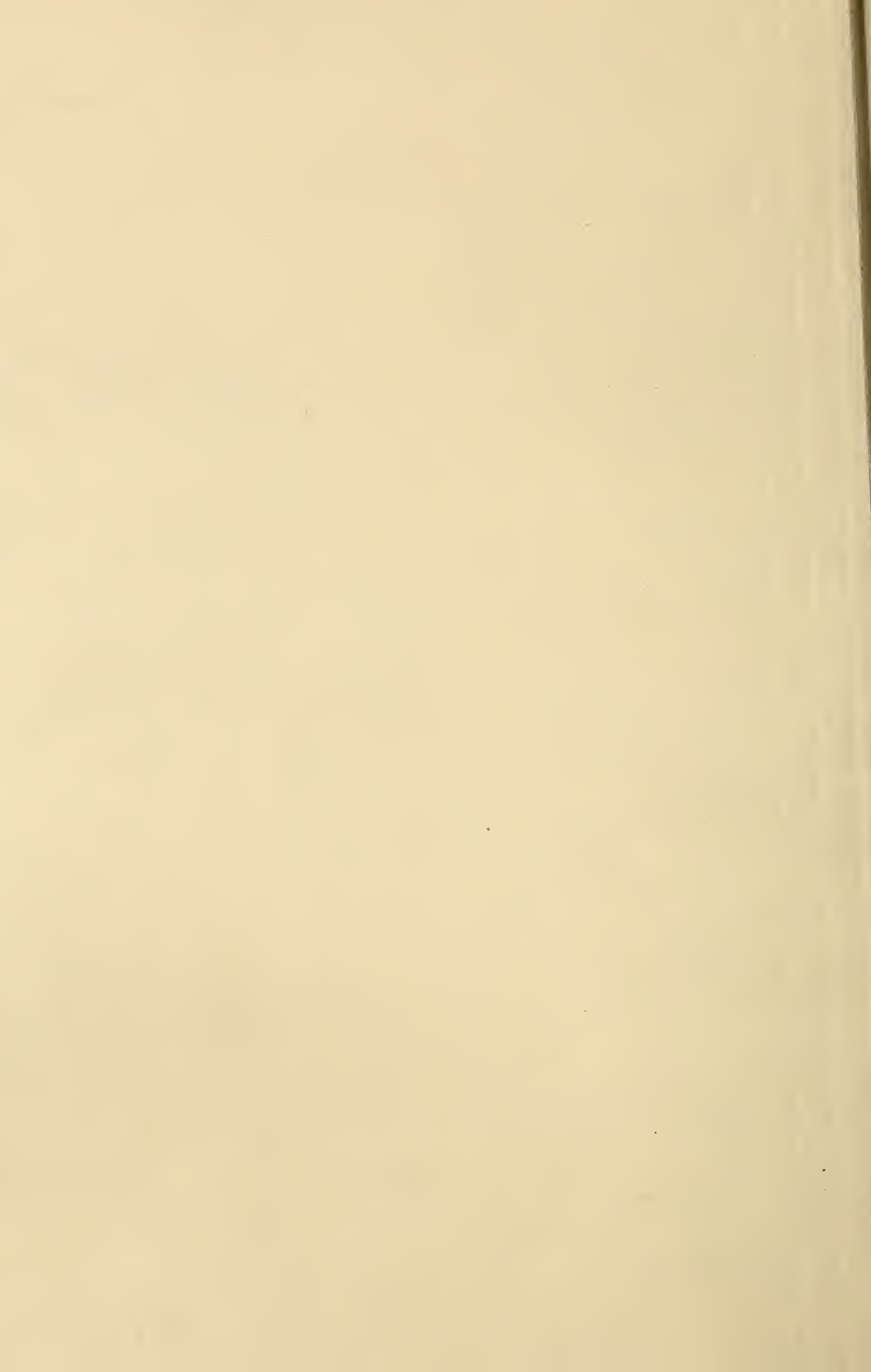


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VOL. XXVIII.

SEPT. 15, 1900.

No. 18.



A POOR HONEY YEAR in Germany is reported in Gravenhorst's *Bienenzeitung*.

HARRY LATHROP, p. 685, makes an interesting statement when he says, "I have fewer and fewer swarms." Now, Harry, please rise and tell us why. [Yes, yes, Harry! tell us the secret.—ED.]

THAT SULPHUR FUMES will kill worms but not the eggs of wax-moths has been orthodox teaching heretofore. Now J. A. Golden, p. 682, says they will kill eggs. How is it? [I do not know. Will Mr. Golden or some one else who does know please inform us?—ED.]

WHEN I TAKE a laying queen from a nucleus I give at the same time a virgin or a queen-cell in a cage (and, by the way, I use a better cage than the Miller cage), and confidently expect it to be received all right. But I wouldn't expect it if I didn't use the *pasteboard method*. [Now look here. Your Miller introducing-cage we have illustrated and described for years is well high perfection itself. I do not believe you have a better one. If you have, trot it out.—ED.]

THE SEASON is well along, but no word has yet been seen from Messrs. Brice, Taylor, W. Z. Hutchinson, *et al.*, saying that a case has been seen this summer in which the bees have of choice selected a too old larva for rearing a queen. Here's a simple thing that any one can try: Take away a queen; then watch whether the first queen-cells started contain small or large larvae. Either give a proof that queenless bees are in such haste for a queen that they choose to their hurt, or else abandon the belief as a false tradition of the dead past.

IS IT NOT much more important to have bees with long tongues than to have red clover with short tubes? If a perfect success can be made with the clover, it will be of no use to me unless I can get farmers about me to sow the right kind of seed—a thing somewhat

difficult. But if the long tongues are reached, I have the thing in my own hands, and am master of the situation. [Yes, long-tongued bees are much more to be desired than short-corolla-tubed clover for just the very reason you mention, and that is where we should concentrate our efforts as bee-keepers.—ED.]

THE PASTEBOARD METHOD of introducing is a big thing—a *big* thing. But some have failed with it. I know of two cases in which the bees didn't gnaw the pasteboard. I don't know how the thing was managed; possibly too few bees in the hive, or the cage in some way too far from them. [There is a right way and a wrong way to use the pasteboard. It should be perforated with small holes directly over the candy, or else it should be so narrow that the candy is exposed directly to the bees at its edges. If too thick or too wide without perforations, I should expect trouble; but the way we use the pasteboard we lose less than one per cent of the queens introduced—a good deal less than one per cent, says Mr. Wardell.—ED.]

IT SEEMS that the queen has nothing directly to do with swarming. (She may have everything to do with it indirectly.) Here is something that points in that direction. When a swarm is issuing from a hive, if part of the bees issue from some opening not used as the regular entrance, the proportion of queens issuing through such opening is much greater than the proportion of worker bees. Formerly I kept a $\frac{1}{4}$ -inch ventilating-space at the back of my hives. It was never used as regular entrance, but at swarming perhaps a twentieth of the swarm came out there, and perhaps a fourth of the queens. A strong proof that the queen does not directly incite swarming was a case in which a swarm issued with no queen present, she having been quietly removed a short time before the swarming.

E. E. HASTY'S ARTICLE, p. 681, is valuable. Perhaps its chief value lies in showing us the difficulty of developing red clover to fit our bees, and making us more intent on solving the more hopeful problem of stretching the bees' tongues. [I have been thinking of this matter since I prepared the footnote to Mr. Hasty's article; and the query that now

comes to me is this: Is it more difficult to stretch bees' tongues than to turn the bands of the bees' abdomens, that are normally black, to yellow? The queen-breeders of the country have been successful in doing this, we know, and in perpetuating a race of bees that will duplicate themselves one generation after another. Now, then, is that feat any more difficult than to develop a race that shall have longer tongues than the average bees? J. M. Rankin, of the Michigan Agricultural Station, reported at the Chicago convention that he had stock that had distinctly longer tongues, and he expressed the conviction that the feat was not so difficult as it seemed.—ED.]

G. M. DOOLITTLE says in *American Bee Journal* some things that are well said. The man who sends to a queen-breeder in May or June an order for a select tested queen expecting it by return mail should understand the facts. "Not much headway can be made rearing queens north of latitude 42 degrees before about June 1." Count 12 days in the cell form, 10 days to laying, 21 days before the first young bees emerge, and 5 days to select, and the first select tested queen is not ready to send out till July 18. Orders left over from previous year, and received in winter and spring, may make it impossible to reach such an order before August. An untested queen can be reached some three weeks sooner. [We very often get orders for select tested queens in May or June; but we have always had a feeling that, when orders were received at that time of the year for immediate delivery, it was assumed on the part of the purchaser that the queen must necessarily be of the previous summer's rearing; *for he ought to know*, if he is a bee-keeper at all, that it would be impossible to furnish tested and select tested queens from the North, of the current year, in May and June.—ED.]

THAT FOOTNOTE, p. 686, giving the preference to shallow brood-chambers for comb honey, raises a question. Perhaps three years ago, I was twice asked the question, "Why is it that sections over Danzy hives are badly troubled with pollen, while there is no trouble with other hives?" I replied that the Danzy hive had nothing to do with it—that it was an accidental matter entirely. After that I had two Danzy hives in use, and there was more pollen in each Danzy super than in 100 others, and since then it has been a question whether the shallow brood chamber did not favor pollen in sections. [That footnote on page 686 to which you refer does not give an editorial indorsement of shallow brood-chambers. I did say that for some localities the scheme was all right, and that Mr. Danzenbaker had on file letters showing that more honey can be secured from shallow brood-chambers than from deeper ones like the Langstroth. We have also had a great number of letters to the same effect. For some localities, and for some people, I believe the shallow chamber has decided advantages, but I do not feel yet like recommending it for every one. With regard to pollen in sections from the use of such brood-chambers, I can

only conclude that it is largely a matter of locality. You may, where you live, have a large number of pollen-bearing flowers, while your regular main honey crop is being gathered. Mr. Lathrop, Mr. Danzenbaker, and those others who appear to be silent on this matter of pollen (probably for the reason they do not have it), I should assume do not have an excess of pollen at the time their main crop is being gathered. I should be glad to hear from Mr. Danzenbaker, and from Mr. Lathrop too—in fact, from any one who has had experience touching on these points.—ED.]

G. M. DOOLITTLE says in *Progressive* that he tried the plan of giving bees free access to a large number of unfinished sections to clean up last fall, and the bees tore the combs so much that one fourth of them were spoiled for baits. He calls it "the Dr. Miller plan," but it's the B. Taylor plan. The Miller plan is just the opposite: allow an entrance to the sections only large enough for one bee at a time to enter, which is very much the better plan when there are only a few sections. When one has a large number of sections to be cleaned, the Taylor plan is away ahead, and I don't understand how it should work so disastrously with Bro. Doolittle. [A good deal hinges on what Mr. Doolittle means when he speaks of having given access "to a large number of unfinished sections." I once exposed ten or twenty poor uneven combs containing honey to the bees just after the honey season, at one of our out-yards, when there were 80 colonies all producing comb honey. I think I never saw a madder lot of bees in all my life. The combs in question were *literally covered* with a lot of bees scrambling and tumbling over each other in mad haste to get a sip at the honey. Thousands of bees were also in the air that couldn't even get a smell, much less a taste, stinging right and left. It was impossible to do any work in the apiary, and it seemed as if our clothes were literally filled with stings. We hastily closed up our work for the day, and went off with our hands in our pockets, with a resolve that we would never try it again. When any one talked with me about letting bees help themselves to unfinished sections in a wholesale way, I thought he was next thing to a fool; but I have recently learned that the bees must have unfinished sections in such numbers so that there will be no scrambling and tumbling over each other to get a taste of sweet. If 500 to 1000 of them were exposed in the apiary in a shady place, I venture to say that Doolittle would have very little trouble, and I would suggest that he try it at some future time, and report. If, in the case I have just mentioned above, I had given 50 or 100 combs, I do not think we should have had the rampage we did. But this is a kind of business that beginners should let entirely alone, and the question may be raised whether it might not be a somewhat dangerous experiment even for some experts. In any case the first trial of it should be at an out-yard remote from a public highway.—ED.]



I schvets by day unt schibbers py night,
Unt trows on von extree quilt;
But ven de sun's ope, I veear dat shirt-vaist,
Unt tinks py colly I'm kilt.

AMERICAN BEE JOURNAL.

A great change in the appearance of this journal has been made by Mr. York. A new heading, very tastily designed, graces the first page; and instead of reading-matter a half-tone of Mr. Eugene Secor fills the rest of the space. It seems there will be no more reading on the first page, but a picture of some prominent bee-keeper. Some might think the change would effect a saving; but the expense of the cut is fully equal to that of the reading-matter. The idea is an excellent one. The issue for this week gives a half-tone of E. R. Root.

Almost an era in apicultural literature is introduced by Prof. A. J. Cook, who is writing a series of reviews of bee-books—this time taking up Langstroth Revised. In speaking of Mr. Dadant's ability to undertake so great a work, Mr. Cook says:

Mr. Dadant, as one of the ablest bee keepers of the United States, and one conversant with the bee-literature of the world, was, without doubt, just the person to undertake this important work. I doubt if he has a rival in his ability in the direction of extracted honey and the production and use of comb foundation.

In the next paragraph, in speaking of Mr. Cheshire, he says:

It is to be regretted that he gives Cheshire credit for illustrations which the latter took without credit from such authors as Schiemenz, Wolff, etc. But, of course, he can not be blamed for this. He also gives Cheshire credit for ideas which the latter also plagiarized. A copyist is always likely to run into error, especially a copyist who gives no credit. It is always dangerous to follow such a one. Mr. Dadant could not know regarding this, and so is not blamable for the blemishes. It seems questionable to criticise so excellent a book, but the mistakes as I have seen them are so few that I am bold to do so.

This whole review, even from the standpoint of physiology, forms the best reading of the kind I have found for a long time, and I think every bee-keeper should read it. In this line of writing in particular, Mr. Cook is a genius. A fine view of Langstroth goes with the article.

On the harvesting, storing, and crating of comb honey, Mr. F. A. Snell says:

To have the honey in the best shape to sell, it should be removed from the hives as soon as all is capped over. The beautiful cappings are then white and very inviting. If allowed to remain long after being capped in the hives the cappings become darkened by the bees, and the appearance is injured.

The United States consul-general at St. Gall, Switzerland, in speaking of the adulteration of honey in Europe, says:

The "dishonoring of honey," as it is called, is a growing art, and several successful establishments are now in operation, producing large quantities of this

artificial honey for the market, and the product is in popular demand. The people seem to like it. It is cheap, and the sales are large. All sorts of ingredients enter into its manufacture, among which may be mentioned syrups, malt extracts of the lowest grades, meal of different kinds, and cornstarch.

From a pound of bee-honey 5 to 10 rounds of "dishonest honey" are made so successfully that it sometimes requires an expert to discover the deception.

J. H. Martin's article, read at the California State Convention, on the necessity of new inventions in apiculture, is worth perusal. He says, "While working for extracted honey, our present method of removing each frame separately, and brushing the bees therefrom, and stirring them up to a high state of anger, may be classed as a primitive way of management. . . . A shallow super is required. If the cover is quietly removed from such a super, and a cloth saturated with a solution of carbolic acid is spread over it, the bees, having a dislike to the odor, will soon leave the super, and it can be removed." Mr. Martin says he expects the automobile to play an important part in the apiculture of the future. It can be used for a great variety of purposes in the way of furnishing power, and is not offensive to the bees as horses are. In speaking of suitable packages for small amounts of honey, Mr. Martin says he saw one lately that worked like a charm. The containing medium was made of sausage-stuffing, but he thinks this was evidently unfit. He says bee-men need a machine that will extract 100 lbs. of honey as quickly as 10 lbs. can now be extracted.

Mr. France uses auger-holes instead of common entrances because they are easily made, and are mouse-proof.



PRIDGEN'S SYSTEM OF QUEEN-REARING.

The Successive Steps by which he Developed his System.

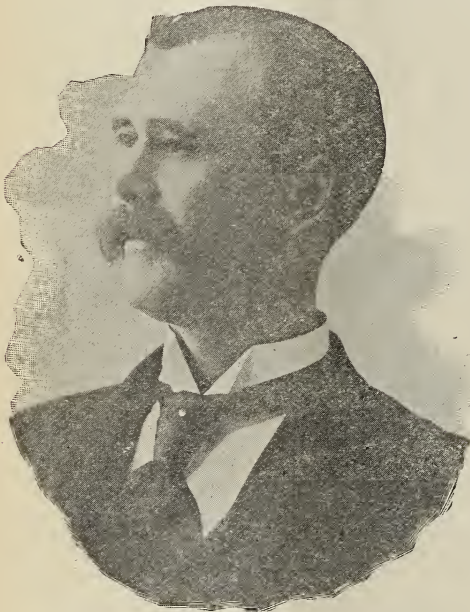
BY W. H. PRIDGEN.

My experience in modern apiculture began about nine years ago. At that time I bought fixtures and made hives at once, using steam power to cut them out. As soon as I got the bees into frame hives the queen-rearing fever ran high. I secured the leading books treating on the subject, and all other information I could. After getting my bees Italianized, as well as those of my neighbors, I reared queens for dealers to some extent for a year or two, and then commenced advertising.

After trying the different methods I finally adopted Mr. Doolittle's, which I succeed well in carrying out, although it always took quite a while to do the transferring, having to adopt some means of marking the cups as the larvae were put in, to avoid having more than one in

a cup. But I did not follow the toothpick transferring long after the Jennie Atchley Co. gave to the public the plan of making cups on *pointed* pegs, and transferring to them the cocoons, larval food, and all, with tweezers.

Like all new things, I had to try it, but must admit that I was not very successful in getting the cocoons to fit snugly, but imagined I should finally succeed if any one could, as I liked the idea of using very young larvæ, which can not be transferred otherwise, and did not like tearing down nice cells to get jelly. In whittling down a stick to make the cups on, and fitting it to a piece of old comb, it took up a cocoon, and I do not think I finished it before making one of the little sticks with the end hollowed out that I have since so successfully used. I am confident I can graft four batches with it while I would be preparing



W. H. PRIDDEN.

the cups with jelly and grafting one without it. Not long ago I tried transferring larvæ only without jelly, which were accepted all right; but I found it a difficult matter to lift them from a comb without shaving the cells down; and if I have to resort to that I can do the work in less time, and get more satisfactory results, by transferring the cocoons.

The next change made was placing the cups in a straight row, and making a nursery to slip over a whole batch without detaching them from the bar, as I did not like to distribute the cells until ready to hatch, which is usually in 11½ to 12 days. Being provided with food, and a means of removing the queens as they emerged, I finally got into the habit of distributing the just hatched queens instead of cells, and find many advantages in so doing. Small and defective ones can be discarded. The occasional cell that fails to hatch cuts no figure,

and nuclei will accept them that would often destroy unprotected cells.

It seems to be a question as to whether the virgins are injured thereby, which may be the case if allowed to remain caged very long, but if removed in from one to eight hours, in my opinion it is not as serious as giving cells to nuclei that can not maintain the normal temperature of a full colony.

The next variation in order was the construction, a year ago, of a set of pegs on the order of those illustrated in GLEANINGS for May 15, except the pegs had heads, and worked loosely in the bar, and the ends of the bar were beveled so as to vary the dip by carrying it endwise (see the *Review* for Aug., 1899, and May, 1900). With this arrangement, after being finished, the cups were all fastened with melted wax, at a single dip, to the bar, the pegs being turned and withdrawn one at a time.

A few months ago I constructed a wheel machine having a row of pegs on both sides of a wheel each of which has on a spool rubber that runs against a board made fast in the frame, giving the pegs a whirling motion while the wheel slowly revolves. It is so arranged that the depth of dip is changed automatically by simply turning the machine with a crank.

After completing it the idea occurred to me that there should be some way of attaching the cups to the bars without melted wax, which is accomplished by boring holes nearly through the bar, and slightly pressing the cups into them. I saw at once that the use of such a bar obviated the necessity of having a flat heavy base to the cups, and that they could be successfully made by the first and more simple plan by having the pegs rigidly fixed, and removing the cups, the dipping and removal to be essentially the same as described on p. 402, current GLEANINGS, though, as in other work, each one will learn to vary the operation to his liking. I have made them varying from 1500 to 2500 to the pound, and considered 1500 to the pound quite heavy; but according to samples recently received from the best authority, 625 is nearer right if one wants to handle the ripe cells roughly.

I suppose the depth should correspond somewhat with the size of the larvæ used; but after experimenting quite a while with different depths—varying from ⅓ of an inch to the natural depth and shape of ripe cells—I finally concluded that a fraction less than ½ inch was more in conformity to the wishes of the bees, and the size of larvæ used, than deeper; but I must be mistaken, as it does not correspond with the samples from Mr. Doolittle, which are the same as recommended in GLEANINGS, neither being advocates of the use of old larvæ in grafting, I believe; at least I would have no idea of touching the three day mark, I am sure.

Creek, N. C., May 28.

[Believing the writer of the above, Mr. Pridden, to be one of the most up-to-date queen-breeders in the world at the present time, I solicited from him a few facts concerning his life, from which I might prepare a bio-

graphical sketch. The statement that he prepared was written so modestly and so well I can not do better than to present it just as he wrote it.

Mr. Pridgen gives full credit to all the breeders who have contributed toward success of the modern methods now in vogue among the principal queen-breeders. But the foundation, as I take it, of his plan, is the Doolittle. This he has modified somewhat by the methods in

the cocoon, larva, and the food enveloping it, and inserts it all at one operation into one of his prepared cups, or goblets. Still more, as if the wholesale idea had not been carried far enough, he and Doolittle have conceived the idea of dispensing with cell-cups altogether by getting the bees to build cells in holes in a stick; but more anon on this. I suspect that, if one gets thoroughly used to Mr. Pridgen's method, he will find it more rapid than any



THE LANGSTROTH MONUMENT, PURCHASED BY BEE-KEEPERS OF THIS AND OTHER LANDS.

use by the Atchleys, and then improved on so that he has at last developed a system that is as practical as it is unique. It is the most wholesale of any of them. Instead of making artificial cell-cups one by one he practically makes them by the hundred. Instead of attaching these cups to the cell-bars one at a time, he secures them in lots of a dozen or more. He does away with melted wax, does away with grafting by means of a toothpick, and in a wholesale short-cut manner takes out

that has ever before been suggested. But at present our Mr. Wardell prefers, as I said in our last issue, the Doolittle method of grafting a larva and royal jelly by means of toothpicks.

But this reminds me that another queen-breeder, who has been almost thirty years before the bee-keeping public, after having tried all the plans, I take it, agrees with Mr. Wardell in that he prefers drone-comb cell-cups; but, unlike Mr. Wardell, and like Mr. Pridgen, he prefers to dispense with royal jelly, believ-

ing*that the handling of it is a waste of time, and that as good results are secured without. But why need I tell more? for he has related his own story better than I can do it for him. See page 733 this issue.—ED]

DESCRIPTION OF HYDE'S TRAVELING EXTRACTING-HOUSE.

Hyde's Queen-rearing Apiary.

BY O. P. HYDE.

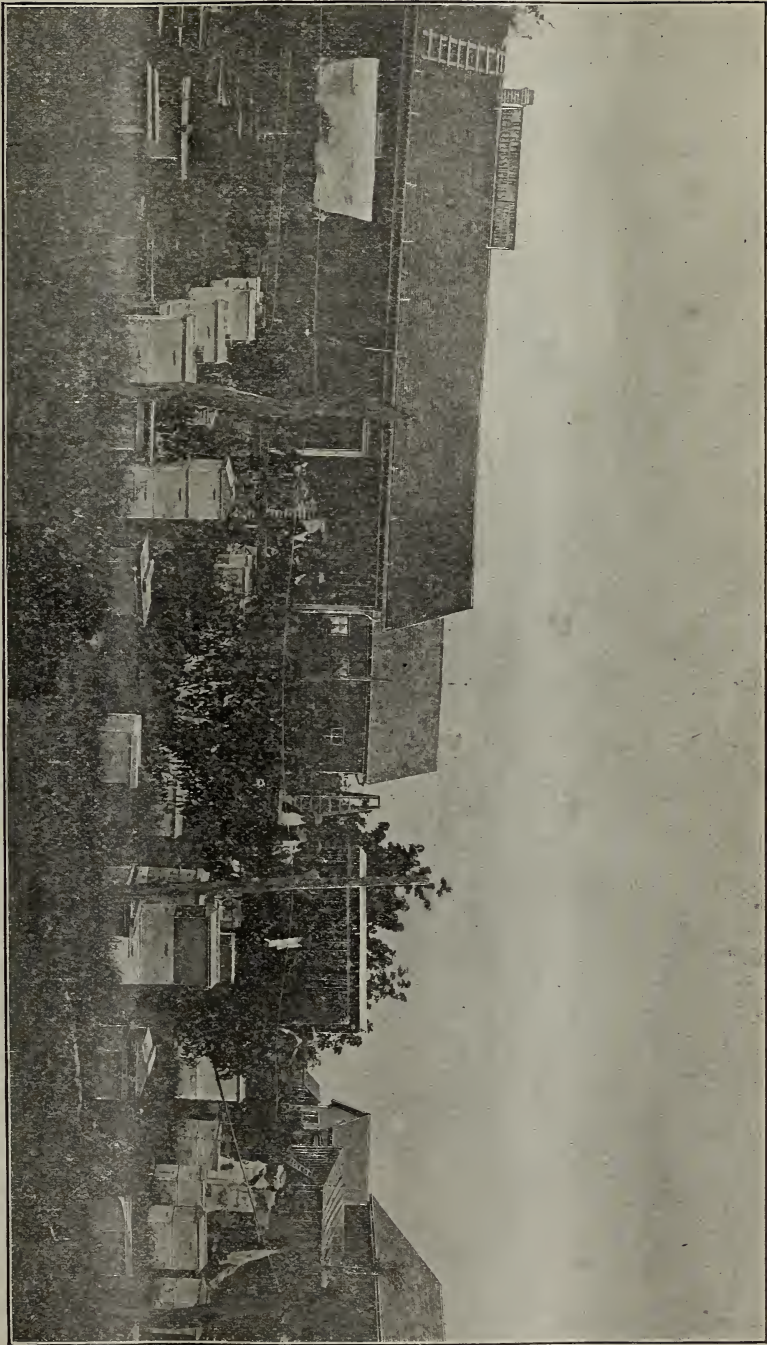
First we bought a low-wheeled Handy wagon, metal wheels, 28 and 32 inches high, 4-inch tires. We made a frame out of 2×4 scantling, floored with 1×4. On the outside edge of this frame we nail and bolt pieces of 2×6. This makes a shallow wagon-box or

platform for hauling bees, loose feed, etc. On this frame we have a rim made out of 1×12-inch lumber. This makes the completed box about 17 in. high, 166 in. long, and 52 inches wide. As this width of box will necessarily project outside of the standards, we cut recesses in the floor of the box at the proper place, and allow the standards to come through about 4 inches. The front of the box is made stationary so as to form a seat. The sides and ends of the box are made removable so as to allow us to use the wagon as a dray, or for hauling bees, etc., as referred to above.

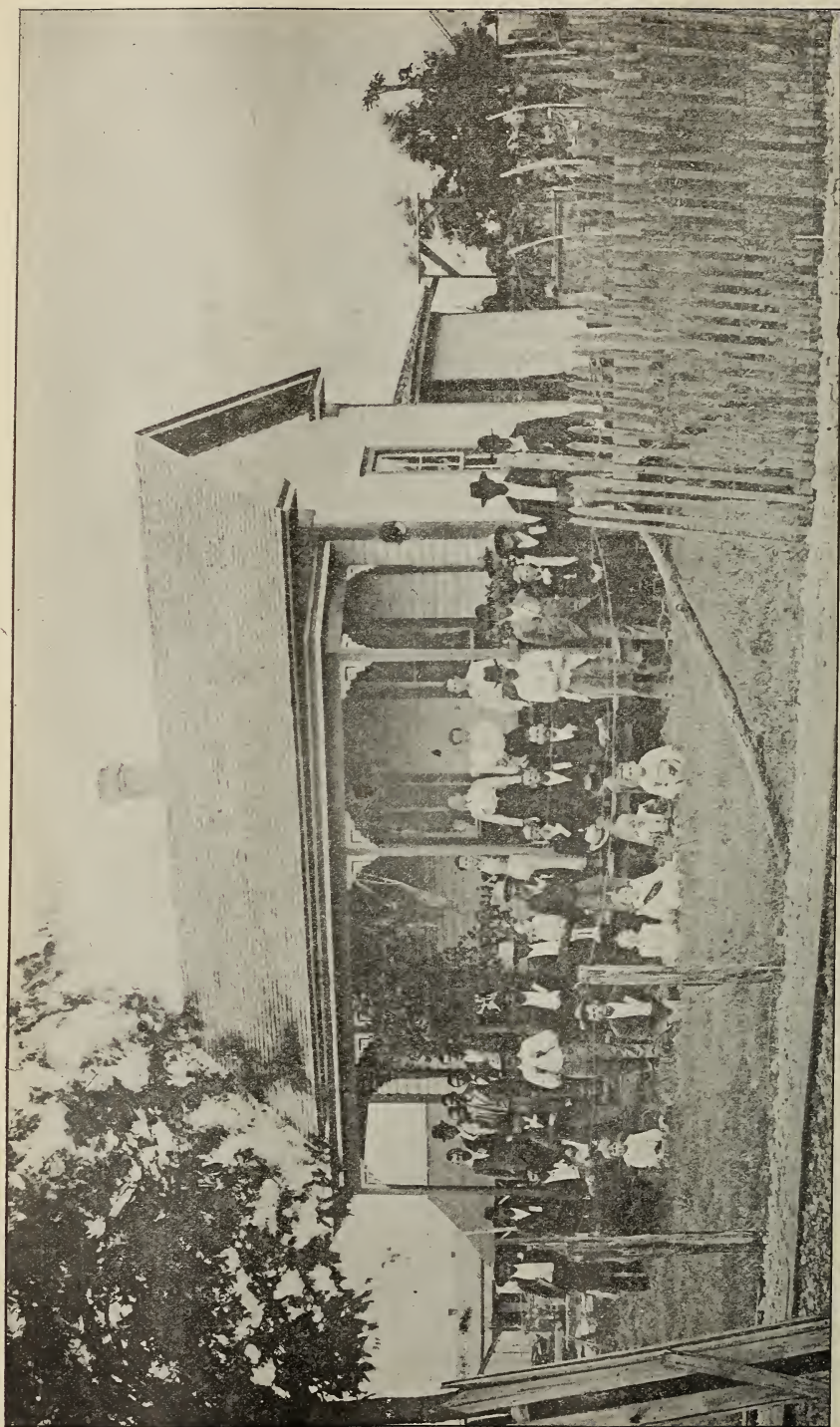
On top of the box we build the extracting-house. First we lay five pieces of 1×3 cross-wise of the box, one at each end, the other three at equal distances. These are 68 in. long, making a projection over each side of the box of 8 inches. On these, at each side,



O. P. HYDE & SONS' EXTRACTING-HOUSE AND OUTFIT READY FOR TRAVELING.

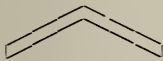


HOME APIARY OF O. P. HYDE & SON, HUTTO, TEXAS.



RESIDENCE OF O. P. HYDE; A COMPANY OF VISITING CENTRAL TEXAS BEE KEEPERS' ASSOCIATION IN FOREGROUND.

we nail 1×12 boards flush with the ends of the cross-pieces. The three pieces of 1×3 that cross the bed are sawed out even with the inside edge of the plank. This forms a shelf on which we set cans, supers, etc. This is very handy. We then use five uprights on each side, and some at each end. These are 54 inches high, and at the top are raftered together with pieces cut thus:



On the inside of these uprights, at the top, is a runner of 1×6, also runners of 1×6 on the outside at the bottom. The remaining space is covered over with wire cloth tacked on the outside. This forms a natural bee-escape all around at the top. We leave a door in the back end, of proper width, swung on spring hinges. The roof is simply 10-oz. duck, heavily coated with thick white lead. The explanation of the construction will be better understood by a study of the engraving. Now for business.

In the front right-hand corner, on the shelf we spoke of, we place a Cowan extractor, which makes it high enough so that we can set a five-gallon open-top can under the faucet. We use a strainer made of 2×3 wood as a frame, and with a wire-cloth bottom to strain honey.

In the left-hand corner, opposite the extractor, we have a galvanized-iron tank that will hold 600 pounds. Over the top of the tank we spread cheese-cloth to strain the honey again. This will remove the finest particles of foreign matter. To protect the cloth we have constructed wire netting by having a rod of iron bent in a circle, and welded just large enough to drop inside the tank. We have short pieces of rod iron cut and bent around the rod, and also bent at top, to catch on the top of the tank. This lets the frame down about 8 inches from top of the tank. To this we fasten the netting, and on top spread the cloth. Near the bottom of the tank we have a two-inch pipe long enough to reach on the outside of the house end of the pipe, having a valve. Under the valve we place a box, on the box a platform scale; on the scales a honey-can, and proceed to draw off and weigh up as we go. We use a cart to carry our supers of honey, etc., from the apiary to the house. We have two solid boards with an edge on them, a little larger than the hives, to set the supers on and to catch the drip. We used a Dadant uncapping-can in the center of the house. The frames are taken from the supers, uncapped, and passed to another box or frame to catch the drip. The frames go to the extractor, then back to the bodies, and are then returned to the hives. We take this extracting-house anywhere with extracting-outfit, camping-outfit, honey-cans, etc., with two horses.

On the seat is Mr. O. P. Hyde and his youngest son, Emmett; on wheels is, nearest the wagon, his eldest son, Mr. H. H. Hyde; the other is Wm. Cravens, an assistant.

HOME APIARY OF O. P. HYDE & SON.

This is a partial view. Only part of the 45 full colonies and 200 nuclei is shown. This is

where their golden Italian queens are reared. This is where Victoria and a good many other costly queens are kept. This apiary, as well as two other queen-yards, is under the immediate supervision of that practical queen-breeder, H. H. Hyde. Near the middle of the apiary Mr. H. H. Hyde will be seen manipulating the colony containing his famous breeder Victoria, without veil or smoke. Mr. R. B. Leahy, of Higginsville, Mo., stands near him at his left. Still further to the left are two little girls. There are also several other visiting bee keepers in the picture. In the background are the supply house, extracting-house, barns, etc.

Hutto, Texas.

[Our artist has retouched the sides of the extracting-house in the picture in such a way that it does not correspond in one respect with the description. I refer to the bee-escape.—Ed.]

BELGIAN HARES.

The Construction of their Hutches; their Food; their Diseases, etc; Continued from Last Issue.

BY PROF. A. J. COOK.

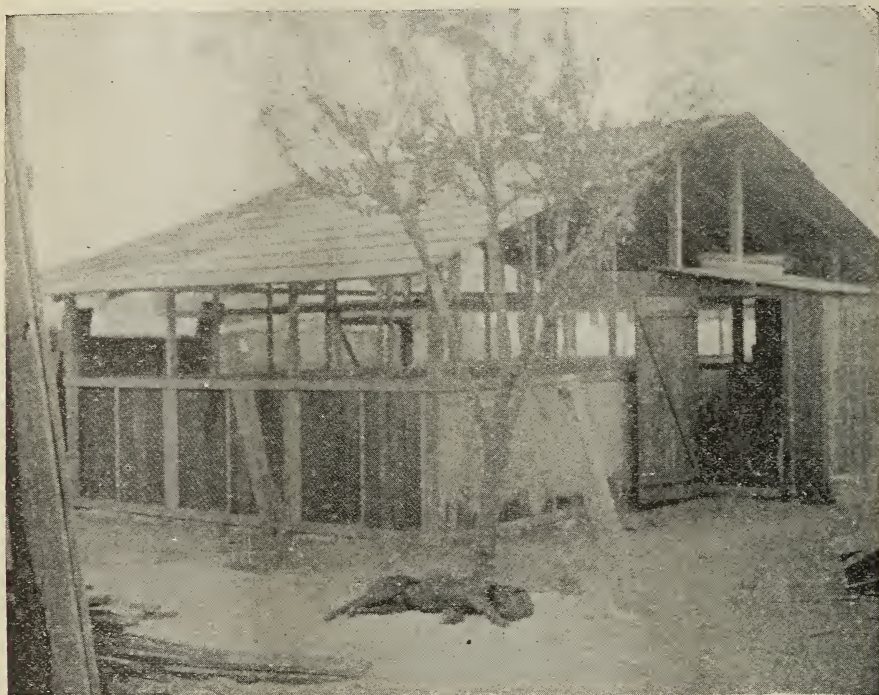
The rabbitry, or place for the animals, need not be expensive. In the Eastern States, where the cold of winter is extreme, it will be necessary to protect against such inclement weather. In California little more than a roof is needed, though it must always be arranged so that the animals will be protected from the rain. The hutches, as their special pens are called, must also be kept dry. In constructing the rabbitry, arrangements must especially be made for most perfect ventilation. The very active life of a rabbit would imply good lungs and great necessity of good air. It is found that, if ventilation is not looked to, the lungs soon show a mottled appearance which surely indicates a disease. In California the sides of the rabbitry may well be omitted, except that arrangements must be made to protect against the driving storms. To secure this last, the side walls might project down for a distance, which also aids in protecting against the trying rays of the sun. Again, I wish to emphasize the importance of perfect ventilation. The air *must always* be perfectly fresh, and yet the animals must be protected against drafts. The hutches should be at least two feet wide, and from ten to twenty feet long. These should be surrounded by wire netting, and, if covered with screens of the same, the animals will be safe against the incursions of cats and dogs. Wire netting should also cover the floor, which should always be of earth. As we have seen, the Belgian hare is a rabbit, and so likes to dig. It is thus well that the females can get at the earth, and the wire gauze makes escape impossible. Some breeders cover the gauze with two or three inches of earth. It is well that the side walls of the runs should be five or six feet high, with a good hinge door in front. If the door does not reach to within one foot of the ground, which space is occupied by a

wide board, it will be more convenient, as the frisky young will not escape when the door is opened. In the rear of the run is the breeding-box. This should be at least two and a half feet square, should open into the run with a hole large enough to permit the mother to pass through, and should have a movable cover to permit easy observation and easy cleaning. Some fanciers recommend sinking this breeding-box in the earth, and digging down on one side to permit entrance. I doubt if this is necessary—at least it is not much followed in actual practice.

Each person must exercise his own ingenuity in constructing his hutches and rabbitry, and must, of course, consult his ideas of taste as also his pocketbook. Some breeders use dry-goods boxes, and have no rabbitry at all.

The pens should be thoroughly cleaned at least once a week. The rabbits are naturally very cleanly animals. Health demands the absence of all filth. Any remission in this matter will surely be the fault of the breeder.

The food used in the rabbitry is easily procured, but should be varied. We may say in general that any thing that is fed to cattle, sheep, etc., or, indeed, eaten by people, if we exclude meat and grease, may well serve in the rabbitry. Alfalfa hay in California and Colorado, and clover hay in the East, are most excellent. It goes without saying that they should be well cured and never musty. The hay can be fed in a wire-screen manger, so as to prevent all waste and litter. These and, indeed, almost any plant or vegetable may be given green to the animal. In such case, how-



RABBITRY OF S. N. KEMP, LOS ANGELES, CAL.

I presume even such an arrangement may, in careful hands, serve well the purpose. But I wish again to urge thorough ventilation, no drafts, and ample runways that the animals may have opportunity to exercise sufficiently to keep vigorous, and to develop firmness of muscle. I visited the rabbitry of our old friend, Mr. O. Clute, author of "Blessed Bees," the other day, and found that he had a number of animals in outdoor runs, but they were all protected by a double covered screen from the sun. Mr. Clute, who has many animals that score very high, also has a good rabbitry.

Neatness is another very important matter which should never be neglected by the fan-

ever, great caution is requisite. Three maladies, each of which is sometimes serious, are most frequently produced by overfeeding green vegetables — bloat, dysentery, and scours. With proper feeding these may be all very largely prevented. The fecal matter should always come from the animals in little balls. If it is sticky, and runs together, it indicates indisposition, and almost as certainly injudicious feeding. The grains, especially oats, barley, and corn, are very desirable as forming a part of the food rations of the rabbit. Beans and peas are also fed with good results. In feeding these it is often found desirable to soften them with water. The ground or rolled barley is a favorite food with many of the

California fanciers. Milk is specially desirable for the does during the nursing period. I have already referred to feeding green vegetables. It is sometimes safer to let these wilt a little before feeding. Vegetables wet with dew or in any other way should never be given. Potatoes, carrots, etc., are often fed with good results. I have already referred to the importance of ventilation and exercise. If we add to these judicious feeding I think we shall have met all the safeguards against disease in the rabbitry.

In my own home I have never had any medicines. We don't keep them. The presence of the doctor is almost as rare. The reasons, I am glad to give—great quantities of fresh air, wholesome food eaten at regular periods, and plenty of good exercise. This is a trio that'll make the goddess of health dance in any home. I can not too heartily recommend the same blessed trio in the rabbitry. I omit-

haunches. Unless raised quickly from the ground the free use of their feet will make it hard to handle them. Their hind legs are very strong, and their only weapon of offense and defense. They may often inflict a considerable wound by the use of these members unless one is cautious in handling them.

In mating the animals, the doe should always be placed in the buck's hutch, and not the reverse. The young, also, should be taken from the mother and placed in a different pen, and not the mother from the young. A few days before the young are born some hay or litter should be placed in the nesting-box. As with sows, so here, it is very important that the mother be very carefully fed just before parturition else she may eat up her own young. This leads me to speak of water, which should always be given fresh at least twice a day, and should be where the mother can get at it at the time of bringing forth her



ANOTHER VIEW OF RABBITRY.

ted to recommend in the above the excellence of bran, made into a mash, for the rabbits, especially the young ones. I would feed, as in case of all domesticated animals, only twice a day, and at just the same time. Such regularity is very important. I wish the human kind understood its importance, and acted accordingly. It would, however, be bad for the doctors. I would, also, feed just what would be eaten up clean, and very soon after feeding. One excellent fancier urges that food be always kept before the rabbits. I am sure this is never wise with any animals. Food always fresh, and not munched or slobbered on, will always be more appetizing; and appetizing food is the only kind that man or animal should ever eat, if health is to be considered.

In handling the rabbits they should never be lifted by the ears, but rather by the loose skin above the shoulders. They should be raised with the left hand and supported in part by the right hand placed under the

young. The young will not need water during the nursing period, but must have it at all other times. Watering and feeding may be done in small earthen jars. These are cheap, and easily kept clean.

The rabbits are subject to very few diseases, all of which may probably be avoided, as I have already said, by precautions in the way of ventilation and feeding. One of the most common and, perhaps, the most serious of these diseases, is bloat. It is a stomach trouble, and without doubt can be wholly avoided by proper care of the diet. Green food in too great abundance is the cause. Dysentery and scours are also more or less troublesome, but can also be largely prevented if sufficient care is taken in the feeding. Snuffles also comes into the rabbitry to snatch away the fancier's pets. Good ventilation, with protection from drafts and chills, will usually prevent this trouble, which is only influenza. There are medicines recommended for all of these dis-

eases, but I believe very little in medicines, and would again urge good air, good food, and good exercise.

Of course, the fancier will wish to study up the business. The best book I have seen is that of Ernest Wilkins, "The Belgian Hare," of Wantage, England. Mr. B. C. Platt, of Los Angeles, Cal., has also published a very good work, "Bonanza Rabbitry." The price, \$1.00, is exorbitant. "The Rabbit," by W. N. Richardson, and published in Syracuse, New York, price 25 cents, is worth reading. A little work, "The Belgian Hare," by Eph. Ruth, Poneto, Indiana, is sold for ten cents.

From what I have said, I think we are safe in the conclusion that this new industry has real merit. It will give us an excellent food at a very low rate. I doubt if any meat is more wholesome than the Belgian rabbit. I feel sure that no meat can be produced at a less cost. The business is safe, the equipment inexpensive, and the space required for a rabbitry is very slight. Therefore we may confidently expect that the production of Belgian rabbits will become more and more a favorite pursuit, especially with those who are not very strong, and so have more of care and thoughtfulness than of physical energy to give to their business.

Now a word about cooking the hares. They may be cooked just as chickens are prepared for the table—fried, roasted, stewed, steamed, or fricasseed. What is better than a good chicken pie? A Belgian-hare pie is equally good. Doesn't a good chicken-stew, with white flaky biscuit, satisfy the most fastidious palate? Well, a rabbit-stew similarly dished up is just as good.

Claremont, Cal.

[While I was in attendance upon the National convention at Chicago I roomed with the Rev. E. T. Abbott. Of course, we talked as only bee-keepers can, and one of the topics of our conversation was Belgian hares as a business to be run in connection with beekeeping. Said Mr. Abbott, "I keep Belgian hares, and I keep them for sale; but I want to say to you that many extravagant statements are now being made concerning them that the facts will not warrant. There are bound to be many disappointed investors in this pursuit. It is stated, among other things, that they are almost free from disease, that they are very cleanly, and all that. The truth is, they are just as subject to disease as any stock; and if their hutches are not cleaned daily they will become positively nasty. One chap who called on me was very anxious to go into the business; but when he saw me clean out one of the hutches one morning he concluded he didn't want any Belgian hares, and I haven't seen any thing of him since. I tell you, when the selling of fancy stock at big prices is over, and there are no more suckers to buy at big prices, the fad will seek its level like every other good business. The growing of hares is all right. There is money in it, if properly managed. The meat is good, and the animals are enormously prolific; but the dear public should know the facts; and one

of these facts is that the hares have a way of getting sick and dying before any thing can be done."

Prof. Cook, while he has painted the bright side, has also given the other side by showing the importance of *pure air, cleanliness, and exercise*, and that the rabbits have disease, and that such disease is often caused by neglect.—ED.]

FINDING QUEENS.

The Use of Shallow Brood-chambers and the Shaking-out Function; Green's Queen-finding Box.

BY J. A. GREEN.

Several months ago the editor asked for methods of finding queens. Although some excellent ideas on the subject have been given, I think it will bear a little more light, as the ability to find the queen quickly is of the greatest importance, and a great deal of time is often wasted in looking for a queen that obstinately refuses to be found.

Few bee keepers, except beginners, need any instructions in ordinary cases. To them we have nothing to say except that the way to find a queen is to *look* for her, as J. H. Martin says. But occasionally you will find a lot of bees, or perhaps only a colony or two in an apiary, in which you simply can not find the queens by any ordinary method, at least not without consuming a great deal of time. Here is where a knowledge of "kinks" and short cuts comes into play. Moreover, if we can save even a few minutes' time in finding each queen, on an average it may amount to a great deal in the course of a season, in a large apiary.

I almost always use the "shaking-out" method of finding queens. The editor seems not to have found the plan a success, which is probably due to unfamiliarity. I do not believe this plan will ever be very successful when the brood-chamber is in only one story, especially if it is more than six inches deep, or has more than eight frames. When the hive is heavy with honey, as the editor says, it takes a great deal of strength to do a thorough job of shaking; and consequently this plan is not very well adapted to any but the double divisible-brood-chamber hive in shallow sections.

In practice I always smoke the bees out of the upper story, and then shake them out of the lower one. You must have a good smoker in good running order, and you must be prepared to work quickly and without any hitches or waste motions. Raise the cover of the hive, and blow a steady stream of smoke over the top of the hive—not in one place, but so as to cover the whole top of the hive as nearly as possible. Do not blow the smoke down so as to fill the whole hive with smoke. The only bees you want to smoke are the rear guards, but you must keep them on the run.

As the bees retreat, follow them up with smoke until you see that most of them have gone down into the lower story. Now, if you continue smoking them, or if you are slow in your motions, there will be a reaction; and

some of the bees, having gone to the bottom of the hive and found no ready means of escaping there, will start for the top again.

Before this begins, take off the upper story and set it aside. You may be tolerably certain that the queen is not in it, though if the bees are yellow Italians she will sometimes remain there.

Without any delay, now blow a little more smoke over the top of the lower story, then at once pick the hive up and shake the bees out of it. As there is little or no honey in this story, it is easily handled. If you do not see the queen at once, shake the bees that are on the bottom board into the heap in front of the hive. Put the hive together and watch the bees as they go into it, using a little smoke to scatter any bunches in which she might hide.

I have said nothing yet about what you are to shake the bees on. If the ground is smooth and clean for two feet in front of the entrance you can get along without any thing else. It will be better, though, to lay down two bottom-boards or covers, a large piece of paper, or a sheet, to shake them on.

Much better than any of these is the "finding-box" that I use. In its latest improved form it consists of a rim of boards—that is, a box without bottom or top, 20×40, and 5 inches deep. Instead of a bottom this has a sheet of perforated zinc fastened about midway between the bottom and top of the rim. On a level with this zinc, on one side, a strip an inch wide is cut out of one end of the box, the opening thus left being covered with perforated zinc.

On the upper edges a strip of tin is nailed, projecting inward a quarter of an inch. This is to keep the bees from crawling over the edges.

If the ground in your apiary is level, and all the hives the same height from the ground, you can make your box so that the zinc is on the same level as the bottom-board. Otherwise, two strips of strap iron bent at right angles, and nailed to the end of the box so that they may rest on the front edge of the bottom-board, will serve to keep it on the same level.

In using this finding-box the hive is lifted from the bottom-board and set crosswise on the back end of the finding-box before the bees are smoked down. When the bees are shaken into the box a large proportion of them immediately go through the bottom, where they remain, making it much easier to find the queen among those that remain on top.

The finding-box that I have used for the past four years, and on which I have found hundreds of queens, consisted simply of three wood-zinc honey-boards placed side by side with a lath nailed across the ends to keep them together, and with legs to hold it two or three inches above the ground.

I had six queens to introduce a few days ago. The queens they were to replace were in full colonies of hybrids, all working in supers; and as it was a showery day, all or nearly all the bees were at home. I took note of the time it took to find the queen in each, which was four, two, six, eight, six, and three min-

utes respectively, or an average of a little less than five minutes each. This covered the entire operation of opening the hive, finding the old queen, introducing the new one, and closing up the hive again.

This finding-box is almost as useful, no matter what kind of hive you have. If you can not shake the bees out of your hive all at once you can shake them off a frame at a time. Move your hive to one side and put an empty one in its place, with the finding-box in position in front of it. As you remove each frame, glance quickly over both sides of it. If you do not see the queen, shake or brush all the bees off into the box and place the frame in the new hive. In this way you combine the advantages of the ordinary method with all the certainty of this one.

Another method, of which I have made a great deal of use in past years, is that of driving. We often read of the exhibitions given by English societies, where prizes are given to those who can soonest drive out the bees and find the queen of a colony in an ordinary box or straw hive; but the method appears to have become almost a lost art in this country. In transferring black bees from box hives I have found it an easy matter, generally, to find the queen while the bees were being driven out of the old hive. I could nearly always find the queen in this way in less time, on an average, than it would have taken to hunt her up in a frame hive in the ordinary way. Remembering this I have used the same method with success with frame hives and with other races of bees. I once bought a lot of bees which were a mixture of Cyprians, Syrians, and Italians. Any one who has ever tried these races does not need to be told that they were cross. Moreover, the queens were very shy, and the frames were very hard to handle (they were in what I believe you call Draper barns now), so that the queen would almost invariably be found on the last frame, or down in the corners of the hive somewhere. I tried finding the queen by driving, and found that I could almost always find them in less than half the time it took to find them by handling the frames. Neither did I get as many stings, nor were the combs exposed to robbers, as was more or less unavoidable by the ordinary method.

To find the queen in this way I would uncover the brood-chamber (in case it was a box hive, invert the hive), then place over it the hive cap or any box about the size of the top of the hive, resting one edge on the back end of the hive, raising the front side with the left hand, so that I could see into the box and see the bees as they went into it. Then by smoking at the entrance, and pounding on the side of the hive, I would very soon have the bees moving into the driving-box, the queen being easily seen as she went up. I have not had any occasion to do any driving since I invented the finding-box, but it will be readily seen that it is a valuable adjunct to the driving process, as, if the queen is not found while the bees are going up, she can be strained out by dumping the bees into the box, just as though you were shaking them from the combs.

Now, some may be inclined to laugh at the idea of using such antiquated methods, and consider it only a waste of time to write about them or read of them. I do not advocate the driving process as a substitute for ordinary methods except in those cases where, for some special reasons, the combs are hard to handle or the queens hard to find; but if you will go at it intelligently, and once "get the hang of it," you will find, as I have, that there are many times when time and annoyance can be saved by its use.

Ottawa, Ill., Aug. 16.

[This article was accompanied by a note from Mr. Green, stating that while, for a few years back, he had been engaged in another line of business that occupied a good deal of his time, taking him away from bee-keeping, he was now going back to his old love. He was present at the Chicago convention, and showed his old-time interest and enthusiasm. He was always a practical writer, and during the time that he was engaged in other business he still clung to the bees, so that in the interim he has by no means become rusty. I am sure our older readers will be glad to see his interesting communications again, for he always was a writer who contributed something of value.]

I am glad to be enlightened on this subject of shaking bees out to find queens; and one reason, perhaps, it was a failure with me was because I attempted to shake both stories or sections of the hive without previously smoking, as directed by Mr. Green. After I had tried in vain to shake out all the bees from two sections of the hive, almost "shaking the daylight" out of me, I concluded that, even if the queen could be found that way, other ways less back-breaking were more comfortable, to say the least. But Mr. Green does not say any thing about putting on bicycle pants-guards, or tucking his pants into his stockings to keep the bees from crawling up his legs. Whenever I do any shaking of combs I always like to provide against any thing of this kind.

But say, friend Green, it strikes me you have given us a valuable kink in your finding-box. Work? Of course it would.

After one reads Harry Lathrop's article on the use of shallow brood-chambers for the securing of comb honey, and this article from Mr. Green, he might almost come to the conclusion that the divisible brood-chamber hive was *the* hive. I am not sure but it is for many localities and for many bee-keepers; but I am very sure that, for some bee-keepers, it is most decidedly true that it is *not* what they want. Both the man and the locality, and to some extent the bees, may not be adapted to it.

It is indeed true that the drumming of bees out of a box, hive, or skep is almost a lost art with the bee-keepers of America. In England it is still practiced very extensively, and likewise on the continent, for the simple reason that bees are still kept throughout Europe very largely in the old-fashioned straw skep. Strange as it may seem, these bee-keepers will dequeen and requeen a hive almost as quickly as we can with movable frames. They can do

nearly every thing except handle the combs. They can even produce extracted honey, but, of course, have to have supers at least with movable frames. But where the straw-skep method of bee-keeping is in vogue, comb honey is generally produced—if not in sections, in the old-fashioned glass boxes.

There! I do not know but our readers will begin to think that friend Green and I are almost going back to the old straw skep. Not a bit of it; but there are methods that were practiced in connection with that form of a domicile for bees, and are practiced with them yet, that may even be used to advantage with movable-frame hives; but, mark you, the frames must not be of the "rattlebox" type. They must be either closed-end or of the Hoffman style—something that will stand a good big vigorous shaking, or a drumming and pounding, when applied to the outside of the hive.

I have believed with many others that hives should be handled more and frames less, and in this I am backed by no less authorities than R. L. Taylor and W. Z. Hutchinson.

But this question will be sure to be fired at me, and I desire to anticipate it in advance: "Do you really mean to say that you indorse Mr. Green's method of finding queens to such an extent that you would abandon the old way and would now follow his?" No, no! and I don't take it that he would recommend it, except in difficult cases. If I were using sectional brood-chambers, which I am not, I might use the plan to a considerable extent; but when using the full-depth Langstroth or jumbo frames, I think I should prefer to take my chances of finding a queen by "looking for her," as Rambler says—looking over the frames one by one.—ED.]

NOTES OF TRAVEL IN EUROPE.

Continued from Last Issue.

BY J. T. CALVERT.

The impressions that I give of the people and their customs, as contrasted with our own, are of necessity very superficial, and may in many respects be very wide of the mark. I give account of only a few things which impressed me on the very hasty tour through England, Belgium, Germany, Switzerland, and France.

The more I see of these old countries, the more I am impressed with the supremacy of America commercially, because of her great advantage over these countries in labor-saving machinery. Here the effort seems to be to employ as many people as possible in accomplishing the work to be done, while in America the effort seems to be to eliminate human labor as far as it is possible by the introduction of machinery.

As we passed through Belgium and Germany on the way from Ostend to Brussels and Cologne, the first week of August, it was in the midst of harvest. Wheat, rye, oats, and barley were being harvested. The crop

was very heavy with straw, four to six feet long. No fences or hedges were seen separating the land into fields. The people for the most part live together in villages. They undoubtedly have their individual holdings, for the different kinds of field crops are interspersed with small patches of about $\frac{1}{4}$ acre up to two or three acres, and the country looks like a patchwork quilt—a patch of wheat, one of rye, another of clover, one of oats, and another of potatoes, then a patch of sugar beets, a piece of plowed ground, and so on. In Germany the patches were very much larger than in Belgium. The grain is cut with a sickle or scythe or grain-cradle, bound in sheaves, and shocked up. Afterward it is drawn together on wagons or wheelbarrows, carefully stacked, and thatched over with straw to shed the rain. About as many women as men are seen working in the field, and the children also help. At one place I saw four or five children pulling a drag over the plowed ground. Very few animals are seen, and oxen are quite as common as horses for draft animals.

In a distance of several hundred miles, most of the way harvesting progressing on both sides of the train, I saw only one steam-thresher, and that was an American-made machine. I saw one self-binder and one or two mowing-machines. Everywhere in the fields could be seen men and women cutting the grain by the old primitive methods of our forefathers, in use before the invention of the modern harvesting-machinery. In the small patches of Belgium the crops were much heavier than in the larger ones in Germany; they were also very free from weeds of all kinds, while in many of the larger patches thistles and other weeds were common. The homes of the people are, in outward appearance at least, neat and tidy, built of brick or plaster, with red tile roof, with flower-gardens in the yard or in the windows. They present an appearance of contentment. It may be the contentment of ignorance as contrasted with the higher average intelligence of America.

Quite frequently may be seen along the roadside a crucifix in a little case upon a pole called a shrine. The worship of the people in connection with these shrines, the churches, and cathedrals, seems a very near approach to idolatry, and yet we may not judge, for the fruit of their religion is quite as evident as in many of our Protestant churches.

The drinking of wine and beer is almost universal, and, indeed, many of our own company who at home are strong temperance advocates have here been induced to drink wine and beer because they say the water is unfit for drink. I have taken the water without stint, and have suffered no ill effects. I can not see but it is equal to any we have in America. We are told on every hand that it is dangerous to drink water, and that we must not do it. I had rather risk the pure water of the mountain streams than any concoction of man's device, in spite of what they say.

In the cities on the continent electric cars are found, though they are not as numerous as we find them in most American cities.

Fares are based upon the distance traveled, and are quite low for short runs.

As we approach the border of Switzerland, in Germany, the farm buildings become more scattered instead of being grouped in villages. These buildings are peculiar in one respect; namely, the barn and house are under one roof. The part in which the people live is usually of white plaster or brick, while the barn part where stock or farm animals are kept is of wood, usually unpainted. All forms one building.

In Switzerland the houses are built with stone or plaster basement above ground, used for storage and animals, and this is surmounted by a wooden house, usually with an attic above, and with very wide-spreading eaves. The shingles are held on by stones laid in rows on broad strips every two or three feet up each side. There are a great many small out-buildings scattered over the fields and mountain sides. Fruit-orchards abound in Switzerland, but are very scarce in those parts of Germany which we passed through. The Swiss people put props under the limbs of heavily laden fruit-trees. In many cases the props are so numerous they look like the banyan-tree. They cultivate the steep precipitous mountain-sides. Where it is too steep to hold the earth from slipping down, stone terraces are built to hold it up; and when the earth is washed down by storms it is carried up again in baskets. Along the Rhine the mountain-sides are covered with these terraces full of vineyards. In Switzerland, on the mountain-sides grass is grown. It is cut, dried, and bundled with great labor, and stored in small sheds or barns. Stock is seldom seen grazing, as that is too wasteful. The people are hard-working, and toil under conditions which in America would seem intolerable; yet they seem to be happy and contented. The bright ruddy faces of the grown people as well as the children; the clear complexion and bright eyes, betoken health and happiness.

When passing through the mountain passes to-day I saw several sawmills driven by over-shot water-wheels. The saw, about the size of an ordinary crosscut saw, works up and down in the form of a jigsaw. The log, when once set, is not turned, but is sawn through and through, leaving the bark edge. The boards from each log are kept together just as they are sawn; and wherever you see lumber piled it will be in the shape of the original logs, with the saw-kerfs out. In a modern band-saw mill, in America at least, a dozen large logs would be cut into lumber in the time taken to make one cut through a small log from end to end here. These Swiss houses, built of this mountain pine or spruce in the substantial way they are built, and left unpainted, will outlast many a well-built frame house in America. The better class of houses, not the best, have walls of solid wood four to six inches thick, made of square timbers doweled together and interlocked at the corners just as a log house is built. The ends are neatly finished, and project a foot or so beyond the interlocking point. This interlocking is so neatly done that it is difficult to see the in-

terlocking joint. The eaves, both end and side, project beyond the walls three to six feet, sometimes more, with supporting brackets. Usually the upper stories project beyond the lower. Wood and other necessities are often stored under cover of the eaves at each side of the house.

Wherever there is a rich garden plot in the valley it seems to be a community affair, like the farms in Belgium, judging from the many small plots of vegetables of various kinds, and many of the same kind growing in regular patches. There seems to be more community of interests, and a greater brotherhood, than we often see in American neighborhoods, and yet I believe that the same brotherly feeling and interest exists in many of the frontier settlements, as well as in other places in our own land. After all, human nature is much the same the world over; and under the uplifting influence of the gospel of the blessed God, as manifested in Jesus Christ, man's greatest needs are met. And the manifestation of this gospel in the lives of men consists in sharing our blessings with others, especially with those who are in need. "By this shall all men know that ye are my disciples, if ye have love one to another."

I will try to tell you in my next installment of notes of some of the interesting sights in art and nature that I have seen in these days of wonderful privileges.



HOW LARGE YIELDS OF HONEY ARE SECURED.

"Good evening, Mr. Doolittle. It was such a bright moonlight night that I thought I would run over a little while and have a talk with you about large yields of honey. Do you believe some of the yarns got off in the bee-papers? I have some old papers lent me by neighbor Smith, and in one of them I see a report of over 600 pounds of honey from a single colony during one year. Can there be any truth in such a statement?"

"Well, friend Church, I think there is truth in the statement; for in 1877 I secured 566 pounds of honey from one colony of bees, and so reported to several of the bee-papers of that time."

"Whew! But wasn't that a big thing?"

"This was considered as a large yield at that time, and is still so considered by beginners and those who are not familiar with the records of the eighties, during which there were several yields made of from 600 to nearly or quite 1000 pounds from single colonies, the truth of which could not well be doubted."

"But how is such a thing possible?"

"To have you best understand I will tell you something about that colony which gave me 566 pounds in 1877. That spring I select-

ed an average colony of bees and set it apart for extracted honey, intending, of course, to do the best I could with it. This colony was no better than half of the apiary would average, and was not helped in the least from any other colony. I built them up as fast as possible by the means usually employed, that of spreading the brood and keeping as warm as possible without artificial heat, as is frequently given in our bee papers and books. By the time apple-trees were in bloom the queen had brood in twelve frames, and from that source I extracted, according to my diary of that year, 16½ pounds, besides leaving them enough to tide over the time of scarcity between apple-bloom and white clover."

"You speak of 12 frames. Is not that a large hive?"

"Well, yes. But a few days after, these 12 frames, bees and all, we set into a hive four feet long, and a division-board placed at the rear of the combs. Once a week two more combs were inserted in the center of the brood-nest until the hive contained twenty combs quite well filled with brood."

"Say, Doolittle, aren't you yarning it? My best colonies do not have over seven or eight frames of brood."

"If you will allow me to go on with my story I think you will see through the whole thing soon."

"Excuse me. I'll try not to interrupt again."

"As white clover was now yielding honey, the hive was filled out with frames of empty comb, the whole number in the hive now being 32. I did not expect that the queen would occupy any of these last 12 combs, but in this I was mistaken; for before white clover was through yielding honey I found brood in every one of the 32 combs, which, if placed compactly together, was fully equal to 15 frames solid full of brood. Each frame gave fully 100 square inches, and each square inch gives 50 worker bees. If exact, it would be about 55, but we will call it 50 as that figures a little more easily. Hence there were 5000 to hatch out of each of these frames every 21 days, or 75,000 from the 15 frames."

"My! but what a lot of them!"

"Yes; but you were to keep still. The average life of the bee, in the working season, is 45 days; so you will see that the queen could place two and one-seventh generations of bees on the stage of action to where one generation dies off. Two and one-seventh times 75,000 equals 160,700 as the number of bees in that hive during the basswood yield."

"O Doolittle!"

"If I had not been there myself I could have hardly believed it. It was a sight worth beholding when the bees were just starting out for the fields in the morning, for they would rush out like an army, and then, later, the entrance would be one living mass going to and fro. From clover they gave 186 pounds; from basswood, 287½ pounds; and from buckwheat, 76 pounds, making the 566 in all. Here are the figures in my diary of that year."

"Well, I should think you did do the best

you could with that colony, as you said you intended to."

"Now, suppose that, instead of securing this large amount of bees in one hive, I had not looked after them at all, but left them to take care of themselves, as the most of those who doubt these large yields do, what would I have had?"

"I am not going to answer that question. I agreed to keep still."

"The queen would have laid only moderately, so that, by the time the white clover began to yield honey, they would have had only about from 25,000 to 30,000 bees. At about this time the bees would have swarmed, thus dividing their numbers, while there would have been no laying queen in the old hive to lay eggs for the basswood and buckwheat workers for nearly or quite three weeks. Besides this, there would in all probability have issued one or more after swarms, thus dividing the bees still more, thereby defeating the prospect of any honey at all from the old colony, so that, were we to call 20,000 bees an ordinary colony as kept by the majority of beekeepers, we should not be far out of the way."

"I think you are about right there."

"This would give but about 71 pounds per colony had this 1877 colony been divided up in that way, so that in reality that big yield, when brought down in this way to its proportion according to the number of bees there were in the hive, is nothing very great after all; for no one would call 71 pounds of extracted honey per colony, in a good season, an exaggerated report."

"Then you think that the number of bees there are in a hive has much to do with the yield of honey from that hive?"

"Most assuredly I do. And all bee-keepers should understand that it is *bees* that gather honey or nectar, not the number of hives which they have standing in the yard, all the way from weak to moderate in bees when the honey harvest arrives."

"Will a large colony do more in proportion than a small one?"

"Now you have touched on a point worth much to every one who desires good returns from his bees. A large colony of bees will do much more in proportion than will a small one, for the outside elements do not have that chilling effect on the hive of a populous colony that they do on a hive with few bees in it. Thus more bees go to the fields, and all work to better advantage."

"In a remark you made a little back you hinted at having the bees when the honey harvest arrived. What about this matter?"

"As I have often said before, and it will bear repeating over and over, the main secret in securing a large yield of honey lies in the securing of a large and contented force of bees at just the right time to take advantage of the honey harvest. If secured too early they are of little use, as there is nothing for them to gather; and if too late, they only become consumers instead of producers."

"How are we to know about these matters?"

"The same way you know about any thing.

In connection with the bees the locality must be understood. If a person understands his locality, and secures his bees as we have been talking, he will have no cause to complain of his yield, if the flowers secrete honey. On these things depends our yield of honey."

"I am glad I called, for I not only understand how better to work my bees, but no longer doubt what seemed to me to be 'fish stories' before. Good night."



QUEEN CELLS FROM DRONE COMB; WHY IT IS PREFERRED; DISPENSING WITH ROYAL JELLY.

I have just read in GLEANINGS from C. Russell, "How to Rear good Queens," and your comment. I will say here that this plan is not a new kink, as you express it in your comment. This was discussed several years ago, and given as a plan to rear good queens by removing the larvæ from cells started by black bees and replacing with larvæ from a choice queen. In fact, I think you experimented with it. I believe it is the only plan by which royal jelly is of any advantage to a transferred larva. I take the ground that just as good queens can be reared by the transfer method without royal jelly as with it, because, nine times out of ten, the bees will clear it from the cell. In rearing queens by the Doolittle process in a double-story hive, with queen below, it might be of service; at least, it is suggestive to the bees; but by my plan of rearing queens it is of no value whatever. I rear queens by removing the queen and brood for 24 hours, and then transfer larvæ into drone-cells fastened on to bars in a frame, as Jones described, and I get all the cells that I wish started, which should not be more than from 20 to 30 at one transferring, and then place cells after two days over a strong colony to be built out.

I have quit fussing over royal jelly. I believe I was among the first to advocate the royal-jelly plan, but have since discarded it. Of course, the stronger the colony that the cells are started in, and honey coming in, the better the queens will be. The objection to the plan that Mr. Russell advocates is that cells become mixed up so that some blacks or hybrids will get in with the batch of cells by oversight. The jelly of those cells is perhaps beneficial to a young larva, but otherwise I think not. If one will take the pains to try it he will find that, within two hours after larvæ are transferred by my plan, the larvæ accepted will be surrounded by watery fluid, and in six hours will be floating in jelly, and, as a rule, three-fourths of the transfer will be accepted. The queens I rear compare favorably with those reared in the swarming season; and when I attain to that I am satisfied; for I don't believe we can beat Nature, but attain

unto it. I prefer the drone-cells to the wax-cups. From my experience it takes a good deal of wax to supply cups for a large breeder, saying nothing of the trouble of making. Every fellow has his plan; and when once familiar with it it is best for him, at least, if not the best way. J. D. FOOSHE.

Coronaca, S. C., Aug. 9.

[I remember well how, years ago, we took out the larvæ of black blood and put in its place larvæ from an imported Italian queen, for I did it myself many times; but I do not remember that we ever exchanged larvæ, one for a younger one of the same race.

I wish we could determine positively who is right—Mr. Wardell, Doolittle, and others, who seem to think that the use of royal jelly insures a larger percentage of accepted cells, or yourself, Pridgen, and others, who hold the contrary view. We are getting nearer and nearer to the point of agreement; and I hope that in time there will be only one *best* method, while now there are apparently three or four that deserve respectful consideration from all careful breeders.—Ed.]

A NOVEL METHOD OF TESTING THE LENGTH OF BEES' TONGUES.

I have just been testing the lengths of the tongues of my bees, and find that a colony of golden all-over Italians has as long as any in the yard. I proceeded as follows: Filled all three holes of a queen-mailing cage (Benton) with candy, mixed stiff, of the very finest sugar, and packed in quite hard. Then I covered the cage with wire tacked on firmly, and put the cage thus prepared down at the entrance of a colony of blacks who dug at it until they sucked up all they could get through the meshes of the wire. Then I took it to another hive and another, until all had been tested to see if they could lower the candy still more, but none could until I came to my pet colony of goldens (which, by the way, always have honey from I know not where). They at once began to dig out the food until it seemed they would lower it to the bottom. I was very careful, when moving my cage, not to press on the wire. I shall send you several of these bees to be measured. Will you kindly do so and report? THE SWARTHMORE.

Swarthmore, Pa.

[It rather strikes me you have struck on a good plan. One thing it certainly does—it determines how far bees can really reach through ordinary wire cloth of a queen-cage. Now, then, the next thing is to determine how far it is from the outside of the wire cloth to the candy just below it. I suggest that you drop a pin through one of the meshes, head downward, so the head strikes the candy. With a fine-pointed pen just dipped in ink, mark on the pin just flush with the top of the wire cloth. Lay this down on a micrometer rule measuring off hundredths of an inch, and with a magnifying-glass count off the hundredths. I have already reported on the length of the tongues of the bees you have. Now, then, see what proportion the total

lengths of the tongues bear to the actual reach of those same bees through the wire cloth, and report through GLEANINGS.—ED.]

AN EXPERIENCE IN WINTERING; WHY THE BEES DIED.

As the time is approaching for preparing bees for winter I should like to have your opinion in regard to a trouble I experienced last winter or spring. I had my bees in good condition (as I supposed) late in the fall. I removed the two outside frames to give room for chaff division-boards. I placed a Hill device on top of my brood-frames; over that a light oil-cloth, and over that a chaff cushion, all nicely packed down. In opening them up in the spring I found bees in several colonies, all dead. They had crawled up and filled the space under the Hill device full—all dead, leaving plenty of sealed stores. I winter on summer stands. Colonies were all strong. I should like to know the cause and remedy.

THOS. MCGOWAN.

Lock No. 4, Pa., Aug. 23.

[It would seem as if you packed your bees in good shape to go through winter and spring; but the next time I would advise you to substitute, in place of enamel cloth, some porous material like carpeting, or, better still, burlap. If any thing, your bees do not have sufficient protection, as I take it your hives are simply single-walled and that the only double-walled space was the chaff division boards on each side. If the hives were chaff-packed all round, or, better still, regular chaff hives, and you used a good-sized cushion on top, I think you would find your bees would come out in good shape; but all outdoor colonies should be protected from the high winds of winter. A grove of trees, a barn or building on one side or that side, from which the prevailing winds come, is sometimes sufficient.—ED.]

BELGIAN HARES; SOME OF THE DRAWBACKS TO THE BUSINESS.

Mr. Editor:—Your advice to bee-keepers, to proceed cautiously in the Belgian-hare business, is well taken. There are a good many kept in this section, and I have them too. The business is not all sunshine, as I have learned by experience and observation. The hares are subject to about as many diseases as chickens, and have a discouraging way of dying off sometimes in large numbers without any apparent cause. They require a great deal of care, and won't bear neglect, and thrive. Careless people, and busy people who are not careless, but have already about all the irons in the fire they can keep from burning, had better pass them by. Of course, they are very prolific, if allowed their own will, and the meat is very good to eat. The most successful breeder I know says if one wants hardy, good-sized stock, the does must have only four litters a year, and rear not over six at a litter. They must be protected from dogs, cats, and the young from rats. If confined in close quarters, only a few can be kept together, as they fight to kill. Their quarters

must be kept clean and dry or they die. They require a variety of food and much care in feeding. A hare won't "live a month on 20 cents' worth of hay," and do well. There is no regular market for the meat, even in Chicago. Selling breeding stock at profitable prices is a business by itself that comparatively few can succeed at. Better keep more bees or chickens. They are much less trouble.

Can any one tell positively, if hares were confined in a bee-yard, would they disturb the bees and get stung? They would be handy to keep down grass and weeds among the hives. But a good fence would be required to confine them, extending eight inches or more into the ground to prevent escape by burrowing, and all trees and shrubbery would have to be protected from being browsed.

South Haven, Mich. H. D. BURRELL.

HONEY FROM OAK-TREES.

I send you some oak-balls. We have a good prospect of a flow of so-called honey-dew from this source, which, however, is of fair quality. Some oak trees certainly have as much as five barrels of those balls. Each one is coated with a white sweetish stuff. In some cases I have seen as much as 40 large drops on one ball.

J. E. CHAMBERS.

Eden, Tex., Aug. 23.

[Similar reports have come now and then for years past. The honey from the oak-balls is seen in only certain localities, and it seems it is not a regular thing any where. We have had reports where great quantities of this honey or honey-dew were collected by the bees in a very few days in the fall of the year.—ED.]

WAX-EXTRACTOR REFUSE FOR SMOKER FUEL.

I saw an article in GLEANINGS about smoker fuel. Did you ever try the refuse from a wax-extractor? Get a good fire of rotten elm wood started, then put in some wax refuse and wood—that is, mix them after you get them started; and if good you may tell the readers of GLEANINGS about it.

Clayton, Mich. C. A. HUFF.

[Slum gum (the refuse from wax extractors) has before been recommended for smoker fuel in connection with something else. It burns readily because it is largely propolis and cocoons. It should of course be saved as it is just the thing to start smoker fires.—ED.]

MERRELL'S SUPER-SPRINGS—A CORRECTION.

I see in GLEANINGS of Aug. 15 that you have received the super-spring I sent you some time ago. I am glad to see that you are favorably impressed with the simplicity and cheapness of the hair-pin super-spring, and I hope you will adopt the spring until some one gets something better. Why did you not untie the legs before you took the picture? The cut in GLEANINGS does not show up very well.

JOHN A. MERRELL.

Edneyville, N. C., Aug. 25.

BISULPHIDE OF CARBON FOR KILLING ANTS.

We use bisulphide of carbon here to kill ants, prairie dogs, gophers, and any thing that *breathes*. The gas, after it evaporates, is heavier than common air. I place a wash-tub over the ant-bed, then place a saucer half full of bisulphide under the tub. If good, every breathing thing under that tub, by morning, will be dead. It is adulterated with benzine, and is very explosive.

K.



J. R. T., Iowa.—It is a little too late now (August) to expect bees to do much in the supers; but if you have some colonies that are still working on the sections, and one that is not, obviously there is something wrong with that colony. The fact that there was more than one egg in some cells would indicate that the queen is not what she ought to be. It is possible that the strain is poor, and should be improved by the introduction of a good new queen. Some strains show very little inclination to go up into the supers. We would either remove the queens and replace with better stock, or else run all such colonies for extracted honey, putting a frame of brood in the upper story to bait the bees above.

R. C. C., Col.—I do not know to whose albinos you refer; but I would say, on general terms, the color or the markings of the bees would not in way enhance their real value as workers. I have been disinclined to recommend bees with yellow bands, white bands, or bright bands, or bright colors. But I do favor bees that will work to produce results in honey with very little reference to the color or the markings. With regard to the virgin queen that had been clipped, I would say it would not have been possible for her to have been fertile. When you find two or three eggs in a cell, the prospect is you have a fertile worker there. See "Fertile Worker," in the A B C of Bee Culture, for further particulars.

W. I. F. H., Pa.—The wages paid to beemen varies all the way from \$1.25 a day to \$2.50. A good man at queen-rearing might be worth from \$2.00 to \$2.50 per day, but such a man would have to be of the very best.

I never advise any one to remove from his present locality to seek a better one. No place is far above another unless it is in Colorado and Arizona, and in such localities honey brings a lower price. Florida and California will sometimes show enormous yields, but such yields are apt to be followed by very poor seasons, making the business of beekeeping even less profitable than that conducted in the East. The best yield of honey reported from any one colony was 750 pounds; but this is exceptional, as 200 and 300 pounds is a large yield.



THERE was an interesting and spirited discussion on the subject of square tin cans versus barrels, for shipping extracted honey, at the Chicago convention. I will tell you something about it in our next.

MANY of our readers will be interested to learn that his Highness, the Bey of Tunis, has conferred on Mr. T. B. Blow, of England, the decoration of the order of *Nichem Iftakar*, with the rank of officer, in recognition of his services as adviser on apiculture to the Tunisian government.

AT the Chicago convention a committee on the preparation of a score-card, consisting of N. E. France, Herman F. Moore, and W. Z. Hutchinson, was appointed. Heretofore there have been no settled rules as to how many points should be allowed for general display, how many for quality of the honey, how many for color, how many for evenness of cappings, and how many for the weight of sections, etc. I have no doubt that the new score-card will be of great assistance to the judges.

EUGENE SECOR FOR CONGRESS.

WE have just received the *Forest City Press*, in which we learn that Eugene Secor, of Forest City, Ia., General Manager of the National Bee-keepers' Association, has been finally prevailed on, through the pressure of friends and admirers, to stand as a candidate for Congress for his district. The above-named paper, in speaking of Mr. Secor for the position, says, "He is a man whom to know is to respect and admire—a man of genuine morality and of ripe experience. . . . In public and private life Mr. Secor is a model citizen, possessing that manly poise of individuality that gains for him a hearing." Another paper, the *Buffalo Center Tribune*, says: "As to his ability, no one even questions that." The *Forest City Summit* speaks of him as "a man of sterling character, broad culture, scholarly attainments, and a large influential acquaintance throughout the district. . . . He is a man of ardent literary tastes, and a writer of marked ability." We congratulate Mr. Secor, and sincerely hope that the bee-keepers of the country may have so earnest an advocate as he would be in the halls of Congress.

THE LANGSTROTH MONUMENT.

A SHORT time ago I announced that the Langstroth monument had finally been bought, paid for, and erected over the last resting-place of the remains of the father of American bee-keeping. In pursuance of a promise made to our readers, that we would show a picture of it as soon as it was erected, I now take pleasure in presenting it in half-tone on page 721 of this issue.

If I am correct, this monument was pur-

chased wholly by the funds of grateful bee-keepers in this and other lands. It cost \$300, is of granite, and, while it is simple and plain in general appearance, like the life of the remarkable man for whom it stands, it is a fitting memorial of the one who first placed bee-keeping on a new substantial and commercial footing.

A good many, previous to the time of Langstroth, saw the desirability of movable combs; and two or three came very near solving the problem, among whom may be named Huber, with his leaf hive; Debeauvoys, and Mr. Munn. But none of these conceived the idea of having the one thing lacking—a bee space *all around* the brood frame, between it and the hive itself. Without this bee space, Langstroth would have taken no advanced step over those who preceded him. By the same invention—the bee space—he also made it possible to separate the several stories of a hive.

If no granite shaft stood for his memory there would still be the movable frame, which would be an everlasting monument in itself; and that he was the first one to make movable frames practicable has been conceded by bee-keepers all over the world. Prominent among those who have made this acknowledgment are such men as T. W. Cowan, editor of the *British Bee Journal*; Edward Bertrand, editor of the *Revue Internationale*, of Switzerland; C. J. H. Gravenhorst, late editor of *Illustrierte Bienenzeitung*—all representative editors and bee-journals of England, France, and Germany. That such an acknowledgment so freely conceded abroad should be bestowed on an American, is an honor of which we may all feel proud.

The inscription, at my suggestion, was prepared by General Manager Secor. As it can not be read very easily in the half-tone, I reproduce it here in plain type.

INSCRIBED TO THE MEMORY OF
REV. L. L. LANGSTROTH.
"FATHER OF AMERICAN BEE-KEEPING,"

by his affectionate beneficiaries in the Art; who, in remembrance of the services rendered by his persistent and painstaking observation and experiments with the Honey-bee, his improvements in the Hive, and the charming literary ability shown in the first scientific and popular book on the subject of Bee-keeping in the United States, gratefully erect this monument.

Rest thou in peace. Thy work is done,
Thou hast wrought well. Thy fame is sure.
The crown of love, which thou hast won
For useful deeds, shall long endure.

BEEES AND PEACHES.

WITH a large crop of peaches in many localities, and not much for the bees to get, as sometimes happens in some places, it is not a little strange that ill feeling has come up between the promoters of the two industries, although many of them seem to be unaware that this question has been pretty well discussed and settled. Bees seldom if ever pay any attention to sound peaches. When they are overripe, and beginning to rot, or when they are punctured by birds, wasps, or hornets, the bees are often on hand to suck out the sweet juices. They may be annoyance to the pickers sometimes, but I think we can

prove conclusively they do not injure sound fruit. A strong argument in favor of the bees is that thousands of fruit-growers are also bee-keepers; in fact, intelligent fruit-growers are also satisfied they can not get the best results from their fruit-orchards unless they keep bees, or unless bees are kept in their neighborhood. Let me explain where much of the misapprehension comes in. Some years ago I bought a load of beautiful red-cheeked early peaches. I was surprised to think I bought them so low. In a few hours I discovered that many of them had little rotten spots which rapidly increased in size. I sorted them all over, and in half an hour more of them were affected with these little spots. Now, the bees discovered, about the time I did, that they could suck out the juices of any peach when this peculiar kind of rotting had just begun. I dropped my work, and spent considerable time in watching the peaches. Some were exposed to the bees, and the others were kept in the same place, but covered with a netting. The peaches commenced rotting in both cases alike; and I found that, to save my peaches, they would have to be used up at once in some way. A perfectly sound peach, so far as one could detect, would have these minute spots of decay in from two to three hours; and between noon and night they were so bad as to be unfit for sale. This is the kind of decay, I believe, that affects early peaches particularly, and it attacks some of the handsomest fruit I ever saw. Under such circumstances bees are blamed, when they have nothing to do with the trouble in the way of damaging sound fruit, although we can hardly blame one not posted in the matter for thinking the bees really destroy them. There have lately been several lawsuits in the matter. I believe some cases have been decided against the bee-keeper, and some in his favor; but it seems to me it is a fit subject for the National Bee-keepers' Ass'n to take hold of, especially in explaining matters, and having the fruit-grower fully understand that the bees have nothing to do with *causing* the fruit to rot. In one case in New York the owner of the peaches declared the bees sting the green fruit and cause it to rot; and the papers tell us he has even gone so far as to declare the bees have stung his *trees*, and thus caused them to die. His opponent declares the trees are afflicted with peach-tree yellows. Now, I do not know in regard to the laws of New York; but if a man in this State permits a tree with yellows to remain in his orchard he is criminally liable.—A. I. R.

THE CHICAGO CONVENTION.

THE great Chicago convention of the National Bee-keepers' Association has now gone into history. Mr. York, of the *American Bee Journal*, one who ought to know, says, "It exceeded any former meeting of the Association, there being at one evening session over 350 persons present;" and in speaking about the report which he will begin publishing in the next issue of his paper, he says: "It will likely be the fullest and best ever published of

any national bee-keepers' convention." The regular stenographer whom Mr. York had engaged was unable to be present, owing to sickness; and as a consequence he was obliged to secure a court stenographer at enormous expense. I watched her pencil while she was taking down one of E. T. Abbott's rapid speeches. He poured forth a continuous stream of eloquence at the rate of a mile a minute; and yet the very moment he stopped talking, her pencil stopped pushing. I take it that, if she could take every word of Mr. Abbott, she could catch every thing, and doubtless did.

When I left for Chicago with my stereopticon outfit and slides I had just a little misgiving whether this feature of the meeting would be a success; but it succeeded beyond my own sanguine expectation—not from any thing I said, but because of the enlivening speeches descriptive of the subjects thrown on the screen from Messrs. Abbott, Mason, York, Baldrige, France, Weber, Benton, and Hutchinson. While the pictures were for the most part good, yet had one speaker held the floor for the evening I fancy the entertainment would have been tiresome. As it was, we had the most delightful variety from all the gentlemen named; and after some of the speeches there was a general cheering and encore.

Mr. Abbott introduced the poet laureate and General Manager of the National Bee-keepers' Association, Hon. Eugene Secor, whose picture was thrown on the screen. He spoke of the delightful poems which had emanated from Mr. Secor's pen; of the good work he had been able to perform in the interests of the Association; and as Mr. Abbott closed his happy speech there was a burst of applause. He likewise introduced, in the same delightful vein, Dr. Mason, Editor York, and E. Whitcomb—as their pictures were successively thrown on the screen. Mr. York introduced Prof. A. J. Cook and Dr. C. C. Miller. Mr. C. H. W. Weber, of Cincinnati, who had bought out the business of the late C. F. Muth, spoke feelingly of his acquaintance with Mr. Muth. He told how Mr. Muth had been known to have in his warehouse and on his platforms \$75,000 worth of honey at a time, which he had bought of bee-keepers, paying cash for it. Dr. Mason, in his usual genial manner, said some very pleasant things of W. Z. Hutchinson and of E. T. Abbott; and then when some comic pictures were thrown on the screen illustrative of certain familiar scenes in the apiary he told how he had been there too. R. C. Aikin, of Colorado, President of the Colorado State Bee-keepers' Association, introduced W. L. Porter, of Denver; also Frank Rauchsuss and J. E. Lyon, prominent bee keepers of Colorado. N. E. France told something about his methods when pictures of his apiaries were thrown on the screen. M. M. Baldrige, one who has been, perhaps, connected with bee-keeping longer than most living bee-keepers, told of his early acquaintance with Langstroth when the father of American bee-keeping had just launched out into the new industry and put out his book, which, for real practical value and literary ex-

cellence, has never been excelled. In connection with the full-portrait view of Langstroth there was shown a picture of him as he was walking through a park in Dayton a year or so before he died; and finally there was shown in colors the Langstroth monument, where it now stands and which has been purchased wholly by small sums from grateful bee-keepers of this and other lands. Mr. Frank Benton, who is intimately acquainted with Capt. J. E. Hetherington, referred to his having been styled the "prince of American bee-keepers," and very properly so, and the most extensive bee-keeper, probably, in all the world. He dwelt upon his army record, of which any bee-keeper or soldier might well be proud; explained how his sword had been struck and bent by a bullet that would have pierced the Captain's heart while he was in the thick of the fight directing his men and a fine target for sharp shooters, and how he fought for the flag that thrills the heart of every American. At this remark, Old Glory was thrown on the screen in all its beautiful colors. General applause followed; for besides the loyal bee-keepers there were many old soldiers who had come to attend the great G. A. R. gathering.

On the last evening, Thursday night, Mr. Hutchinson, by the aid of the stereopticon, took us on a delightful trip among bee-keepers through Wisconsin and Michigan. He not only showed the pictures of persons he had met and of the apiaries he had visited, but all the hive-manufacturing establishments where he had visited, including some he had not seen.

THE WORK OF THE PURE-FOOD COMMISSION IN ILLINOIS.

At the Chicago convention we had the pleasure of hearing from Prof. E. N. Eaton, chemist, and Commissioner A. H. Jones, of the Illinois State Pure-food Commission. Both of the gentlemen expressed themselves as being highly pleased to meet so representative a body of bee-keepers assembled for the purpose of discussing ways and means for putting down the adulteration of honey. They told of the work they had already begun; how they had compelled the dealers throughout Chicago (the very hotbed of adulteration only a few months ago) to sell all food products under their legitimate and real names. Samples of honey mixtures were brought in, showing in some cases the word "pure" had been crossed out by the dealer, and the word "imitation" in plain letters had been written in its place to conform to a recent law enacted at a session of their last legislature. All kinds of honey mixtures, imitation honey, glucosed honeys, if they are sold at all, have either been relabeled or else the word "pure" has been scratched out and the word "imitation" in bold letters put in its stead.

It will be remembered that the United States Bee-keepers' Association, under the direction of General Manager Secor, and through the personal efforts of Geo. W. York and Herman F. Moore, a well-known honey-man and an attorney as well, gathered up, a year or so

ago, a number of samples of bogus honey. These were placed before the city prosecutor, and certain suits were begun against the vendors of the samples. It created quite a *furor* among the dealers, for the Chicago papers were full of the matter for the time being; and although the first suit resulted in a verdict of "not guilty" for one of the parties on a queer sort of technicality before the justice, the result of this prosecution, while apparently a failure, was a far greater success than the Association could have hoped for in twenty years. How? Both Prof. Eaton and Commissioner Jones stated before the convention that the suits begun by the United States Bee-keepers' Association made such a stir in the city that it helped in no small degree toward the enactment of the new law now in force *and being enforced*.

If the Union or Association, as it is now, had never done any thing else we could feel that it had accomplished enough. There is nothing like agitation, *agitation*, AGITATION. In this day the brewers and saloon-keepers fear the work of agitation more than any thing else. Every bee-keeper in the land ought to rise up and hand in his dollar, if he has not already done so, because the Association has grappled his greatest enemy, the adulteration evil, *by the throat*, and it now remains for it to follow up its Appomattox.

THE LEAF-HOPPERS ON BASSWOODS.

WITH regard to certain insects being enveloped in gobs of mucus on some of the basswood-trees in our vicinity, and about which I wrote on page 532 of our issue for July 1, I would say that I sent samples of the leaves to the Ohio Experiment Station; and Prof. Webster, to whom the matter was referred, writes:

Mr. Root:—Your letter to Mr. Green, and the express package have been turned over to me. There are insects in the glass jar, out none of them could have eaten the leaves of the basswood that you sent, nor could they have stripped the twigs of bloom. They might, perhaps, have punctured the blossom stems and caused them to fall off. The insects that are contained in the jar are a species of leaf-hopper which have not been before known to be destructive.

In regard to canker worms they are likely to occur next year where they did this year; but you can easily manage them by spraying with arsenite of lead or disparene, at a strength of 3 pounds to 50 gallons of water. These are new insecticides that have only recently been placed upon the market, but you can easily arrange to secure them in ample time to apply next year.

F. M. WEBSTER.

Exp. Station, Wooster, Ohio, June 29.

JUST before the opening of the Chicago convention Mr. F. A. Converse, superintendent of live stock, and of dairy and agricultural products for the pan-American Exposition at Buffalo, introduced himself to a few bee-keepers who had assembled at the convention hall. He stated that he had come to learn the wishes of the various representative bee-keepers as to the nature and extent of the apianian exhibits to be made at Buffalo. He said he was anxious to give bee-keepers what they sought, and that if he knew their requirements he would try to meet them as to the amount of space, location of the exhibit, etc.



If thou turn away thy foot from the sabbath, from doing thy pleasure on my holy day.—Isa. 58:13.

The whole sentence from which I take my text comprises two long verses; therefore I do not take the space to give the whole of it. It is a promise to those who strive to keep the sabbath as a holy day, and who refrain from making it a day of selfish gratification and avoid yielding to selfish impulses and promptings. It has many times been a question with me as to what I should or should not do on God's holy day. The question I have recently mentioned so often, "What would Jesus do?" has frequently come up. Jesus did not leave any cast-iron rules for us in regard to the manner in which we should spend Sunday; in fact, he had more to say in the way of *rebuke* for the foolish ideas and traditions the Pharisees had laid down than he had in telling us exactly what we ought to do.

Last Sunday, Aug. 26, in consequence of a train being a good deal behind time I found myself on Saturday night, very near midnight, in the great city of Toledo. I was so tired I inquired for the nearest hotel. In the morning I found the First Congregational church, something over a mile away. Directions were given me how to find it by taking the street-cars; but one of my first efforts on Sunday is to avoid doing any thing that requires other people to work, or prevents them from having a rest one day in seven. As I had plenty of time I enjoyed walking to the church. There I learned there were no exercises earlier than the sermon, at half-past ten. The church is located in the midst of a busy street, and an inscription on a great stone that constitutes a part of the tower informs us that the first church was built in 1844. It was enlarged in 1856; burned down in 1861, rebuilt in 1862, and taken down and rebuilt in 1877.

As there was considerable time before the services began, it was something of a question as to what I should do. I have acquaintances in Toledo, but I did not like the idea of visiting on Sunday, especially when it required the aid of street-cars. I have formed no cast-iron rules about patronizing Sunday trains or cars; but I always avoid them when I can. I have recently read considerable in the papers about wickedness in Toledo. I have seen some very severe censures in regard to Mayor Jones and the way he lets saloons run rampant, nights and Sundays. My conscience did not trouble me when I decided I would look the city over and see how it looked Sunday morning. I am pleased to tell you I was surprised to see every thing so orderly and quiet. I did not succeed in finding any saloon that seemed to be open and doing business. Every thing seemed to be quiet and peaceable. Perhaps the bad element had not got up; but I rejoice to know there is a time in the early morning hours on Sunday when such a city is comparatively still. There were many signs at the

entrances to the saloons and beer-gardens, indicating a bad state of morals; but there seemed to be no sort of *traffic* going on at that hour. I did witness one sight that gave me a great deal of pain, that I am going to mention further on.

I believe I was the first person to enter the church after the doors were opened. The janitor was very pleasant and obliging, and seemed to show a true Christian spirit toward a stranger. When the worshipers began to come in, one of them very courteously offered me the use of a fan, as the day was very warm; another one handed me a Sunday-school quarterly, and they were certainly model people, *what there were of them*. We had a grand sermon, but there were not more than two or three dozen people present, and the church would hold a thousand, without the least difficulty. The minister spoke of a certain city of olden time that was walled in, and the people of it had no intercourse with other nations. It died of stagnation, and became an easy prey to its enemies. He said God did not intend we should live hermit lives, but that it was our duty to be about among the people of the world, to know what was going on at home and abroad, and to be *one* of the people. We may be *in* the world and in touch with it, but not *of* the world. Jesus prayed that his little band of followers, after his departure, should not be taken out of the world, but that they should be kept from the evil. It was in line with my impressions of the morning, and my conscience told me I was doing right to look over the great city, not from idle curiosity, and not to see its beautiful buildings and other structures, but to look over *humanity* with a loving interest and anxiety for its truest spiritual welfare.

After church we had Sunday-school. I had studied my lesson well in the quarterly that was loaned me, and thought that perhaps, as it was vacation time, I might be asked to take charge of a class. Some of the teachers, perhaps, would be absent. Now, do not think, when I tell you what I saw, that I am doing it to find fault or to make out that the world is going to the bad. I do not believe such is the case; but I do fear that grave evils confront us. I do not think there were over two dozen people present, all told, at Sunday-school. By way of young people there were two boys in their teens and two little girls that might belong to the infant class. The Sunday-school room was a beautiful place, with all modern appliances, class-rooms with most comfortable seats, large windows for ventilation, plenty of blackboards, and pictures and charts in colors, but nobody to make use of them. The superintendent finally said we would all get together around his stand, and have a general review of the lesson. I do not wish to criticise, but it seemed to me the little gathering laughed it off, too much as only a piece of pleasantry, that nobody had come to Sunday-school. In his talk there was no recognition or word of encouragement for the two or three children who had come when everybody else stayed away. I came pretty near saying "stayed at home," but I think

the other expression is better. As an apology for no Sunday-school at all, the speaker said he could scarcely blame the children or anybody else for not wanting to come out on such a sultry day. Now, this might do very well, and we might go home and read and sleep, and think matters were not so very bad; but let me tell you, dear reader, during my rambles over the city that Sunday morning I found hundreds if not thousands of children of all ages going *somewhere*. Mothers were dragging them along for fear they would be late. Fathers were lugging those too young to walk, and small boys and girls were tugging at large luncheon-baskets. Where were they going? I did not ask, but the great crowd of humanity filled the large depot to such an extent one could hardly get in and out of the spacious doors. They were going on excursions somewhere—*Sunday excursions*. The reason there were no children out to fill that great Sunday-school room and other ones like it was, I fear, that their parents had taken them to go off on a Sunday excursion. Oh! I forgot to tell you there was one great church that was full of people—so full, in fact, that I could not get a glimpse of a seat anywhere. It was mostly full of *children*. Now, I do not know just what inducement was thrown out to get these good people (whole families) to be so devoted and faithful to their church and their worship. I discovered, after I stood on the threshold, that it was some sort of Catholic church—at least I judged so by some burning tapers and some things connected with their worship; and I wish to say on my own responsibility right here, "May God bless and guide our Roman Catholic brethren in their decision to let no excursion nor any other *outing* prevent them from being in regular attendance at the house of God."

My trip home was on an excursion ticket, and the conditions of purchase were that, when I started home, there should be no stop-off. I was to take the first train till I reached home. I have told you I prefer not to travel on Sunday; but in this case I would have to lose my ticket entirely or take a train at 2:15 Sunday afternoon. I did not think, and do not think now, I was called on to lose my ticket by waiting till Monday morning. The train was not an excursion train, and the road, the Wheeling & Lake Erie, does not, if I am correct, offer any lower rates for Sunday travel than any other day. As a consequence there were very few passengers, and my trip was very quiet and Sunday-like. It landed me 15 miles from home. There were particular reasons why I wished to be home early Monday morning. I found a chainless wheel in the town, that I could rent, and I could easily have made home before dark. In fact, I had once decided to go home on the wheel rather than stay over night at a hotel. In fact, I sat down to supper expecting to take my wheel-ride immediately afterward. I had been traveling for about a week, and had had scarcely a wheel-ride, and I confess I was in rather buoyant spirits in anticipation of the fifteen-mile trip just about sunset. But conscience was troubling me. The trip was for pleasure and

the fun of it, and because I wished to get home, and I wanted to get home so as to save time Monday morning. For many years I have shut down on inclination whenever I felt that what I *wanted* to do was not exactly what I *ought* to do. While I ate my supper there was a warfare going on. Something urged me to go ahead and have the wheel-ride, no matter what people thought, or if it might not be just the thing. While I am discussing this matter I feel that my readers are divided into two great classes on this question. Very likely the larger number will say, "Why, Bro. Root, you make a big fuss about little things. You had been gone away a week, and were almost home. If you rode your wheel you did not oblige anybody to work on Sunday—not even a horse. It was your own strength and muscle. If you never do any thing worse than that, you will do pretty well." Another voice (or we may say another company of my friends, and perhaps the small company) said, "Dear child, you have taught vehemently for years past, to shun, as the Bible enjoins, even the *appearance* of evil. You have, through all your Christian life, refrained from any thing that seemed like work or un-called-for work on God's holy day. Fifteen miles before dark will be very severe exercise—it will be work. But even if it be true that this work is something you enjoy, it will be 'seeking your own pleasure' on God's holy day in a way you have not been accustomed to do. Still more," and the voice sank almost to a whisper—yes, it *was* a still small voice that suggested, "not many years ago, here in this same town, you addressed a churchful of people. The business men, you may remember, closed their stores, and came out *en masse* to hear you talk. You spoke about Sunday observance. You told them how careful you were to abstain, not only from business, but from making the day a day of pleasure and recreation. In fact, you defined pretty closely what it meant to remember the sabbath, to keep it holy. Now, perhaps many of those who listened to you will think it is all right, your going home on a wheel under the circumstances; but are there not a few who will feel pained to notice that A. I. Root, as the years go by, has lost, at least to some extent, his careful and conscientious regard for the sabbath? During the whole 15 miles, where everybody knows you more or less, will not many be pained, and perhaps some of the younger ones *harmed*, by the spectacle of yourself out on a bicycle on Sunday? You know you have been pretty severe on some of the teachers in your own Sunday-school who take bicycle-rides of several miles on Sunday afternoon for recreation, pleasure, or business."

I am ashamed to say that, for a time, I was contrary and stubborn. I was not inclined to give up; but I finally declared I would err on the safe side, and that inclination should cut no figure in my decision. A bright young girl was waiting on the supper-table. I asked her if she could tell me about the preaching services of the evening. She said there was to be a sermon at the Free-will Baptist church;

that their minister was a comparatively new man, but he was very interesting, and the church was always full. You see God, in his infinite mercy and love, had in store for me something to correct my impressions during the fore part of the day, and there I was planning to leave my coat and valise to go by express, and I to go flying across the country in my shirt-sleeves *in place of going to church*.

I was on hand early at that Baptist church, and got into a very bright active Endeavor society. In fact, the little church was pretty well filled with young people and those too who remember that iron-clad pledge to take part in every meeting. That little country place, not much more than a four corners, furnished a larger attendance at the Endeavor meeting than the great First Congregational Church in Toledo. After the Endeavor meeting, a real live Christian minister gave us a home talk of twenty or twenty-five minutes. He took his theme from the text of the Endeavor meeting, and he asked the young men and women if they were looking out that *mother* had an easy time when so many people are getting tired out in consequence of the heat. He gave some glimpses of home life that almost made me think he had been peeping into our own home; and by the way the young people exchanged glances I knew he had struck on a point that needs to be touched on in almost every home in the land. Look out for the dear mother, and see that too many burdens are not allowed to fall on her shoulders. In this little country town the people came out until the church was crowded almost to overflowing. The windows were opened wide, there were plenty of fans, and it was not so uncomfortable after all. If our great cities are in danger of being spoiled by wealth and every thing it can furnish in the way of conveniences for worship, thank God the little towns are holding fast to Bible teachings, and making a good use of the plain humble little churches, many of them that were built by our fathers years ago. Thank God for the country, for the small towns, and for the plain country people.

Just one more picture. Not long ago I attended a great picnic. There were *steamboat* loads of men, women, and children. I was with the crowd, although I did not much approve of the place where we were going. As the train swept past a little country town I saw another crowd of picnickers. They were loaded on an old-fashioned lumber-wagon. There was not any style about it, and the children were not dressed as expensively as many of the children on the train; but right up in the center of the group on that lumber-wagon was a little home made banner; and on that banner was some rude printing which read, "Our Sunday-school;" and it seemed to me then that there was probably more real integrity in that little wagonload than in the whole great crowd that filled the two great steamers. Yes, I should sooner expect to find the child that may some time be worthy to become *president of the United States*, among those humble hard-working people, than among the thousands that go out from cities.



A TRIP TO NORTHERN MICHIGAN.

My impression is that few of the friends realize how much it helps a man in business to have a printed letter-head, so that whenever he writes a letter to anybody he tells the world, or whoever may get hold of it, something about what his business is in life. As for myself, it always pleases me to see something printed on any letter I get, indicating who the writer is, or *what* he is, besides where he lives. One day my eye was caught by a printed letter-head reading as follows: "James Hilbert, Elmwood Fruit-farm. Specialties: Strawberries, maple syrup, and honey."* Well, now, all of these things interested me, and just then they interested me still more. When I was up in Muskoka having such a good time I told my friends I owned 40 acres of land in the northern part of Michigan; and by looking on the map we found it was just about as far north as Muskoka; and I remembered, too, it was called a great place for hot-weather excursions and summer resorts. My land is a few miles north of Traverse City; and this letter-head that attracted me came from the postoffice nearest to my property. Of course I soon scraped acquaintance with friend Hilbert, and talked about making him a visit. Well, one day I noticed that on the 21st of August there would be an excursion from a station near by, to Traverse City and *return*, for only \$6.80. At first I thought it must be a mistake, but I soon found out it was correct. The regular fare one way would be over \$10.00. When we are finding fault with the railroad companies would it not be well to remember these special privileges they give us every little while?

On very short notice I was in Traverse City, and called up friend Hilbert by telephone. While I was waiting for him to come after me I rented a wheel and got out in sight of my property. In fact, I would have ridden clear over to Mr. Hilbert's, but feared he might go to town by some other road, and so I should miss him. As a rule, the roads are sandy in this locality; but the one I found along Traverse Bay was a very fair and certainly a very pretty wheel-route.

I soon noted that this peninsula was a great place for growing potatoes. In due time friend Hilbert appeared with a smart span of ponies and a light buggy, and we were off over the sandy hills. His letter head did not say any thing about growing potatoes; but he might well have "potatoes" among his specialties, for he has about 17 acres of his own; and when we got on top of a pretty good-sized hill I could see potatoes in every direction—not only acres of them, but miles. You see this cooler climate, while it is not just the thing for corn, is just right for potatoes. They do not stand hot weather; and I believe

* James Hilbert, Bingham, Leelanau Co., Mich.

our experiment stations tell us that what is often called blight is only the effects of extreme heat with a humid atmosphere. The foliage seems to burn or rot around the edges. I visited the same locality just nine years ago, and I did not notice then that it was given particularly to growing potatoes; but since then everybody in that region seems to have discovered that potatoes are *the* crop.

Another pleasant surprise awaited me. It is a great *buckwheat* country. Buckwheat, like potatoes, does not stand much heat—at least the grain does not fill well until we begin to have cool nights. Friend Hilbert had a large field of his own, and ever so many more were in sight over the hills in different directions. He says they grow only the common old-fashioned buckwheat. Honey was coming in right lively. Combs were being filled out and capped, and the inside of his hives looked like June in clover time. I told him the honey looked too light-colored to be buckwheat; but when I tasted it I found it had the buckwheat twang all right; but I did think it was a little the *nicest* buckwheat honey I ever tasted. I told Ernest about it, and he said it was, without question, buckwheat and red-clover honey mixed. The Traverse region is also a fine place for growing red clover. Again and again I wished friend Terry could take a look over Leelanau County. I was astonished to learn that they sow red clover in August, among the growing corn or wherever there is a chance to get it in. Said I:

"Why, look here, Mr. Hilbert; how is it possible for red clover to winter over away up here in the North when sown in August, when it would not in Ohio?"

"Why, Mr. Root, you fail to take into account that we have snow here oftentimes in November that stays on the ground till April."

Somebody has told me since that clover *grows* under the snow all winter, for the ground is rarely frozen at all. Friend Hilbert pointed to the fences around the barnyard and laughingly remarked that he had many times driven his team right over the tops of those fences on the packed-down snow.

Perhaps I had better warn our readers right here that this Traverse region is just now my hobby, and you will have to make due allowance; and, to tell the truth, I can not think of any other place in the whole world, that I know of, where I should like so well to grow strawberries, clover, and potatoes, as in this region.

Friend Hilbert has a family of seven. I do not know but I have told you before, a fruit-grower needs a lot of boys and girls if *anybody* does. Well, he has a very nice place away up on the summit of a hill, and a *very* nice family. I soon became acquainted with them all, and even went out into the outside kitchen to find the tea-kettle and help myself to hot water. I had been down in the strawberry-patch admiring the rank luxuriant growth of his plants, and pulled weeds to see how much easier they came out in that sandy loam than in our own Medina clay soil; yes, and I sampled the blackberries till I came pretty near getting sick. Why, there was no

end of things around friend Hilbert's that aroused my enthusiasm. For instance, his little girl, eight or nine years old, went out by the barn to dig potatoes. I thought, as she went along with a light potato-hook in her hands, she was hardly large enough for such work. In fact, the potato-hook would not have been large enough nor *stout* enough either, in our Medina clay. I saw her dig one hill, and looked on with astonishment, not only at the beautiful large potatoes, but at the number in the hill. The hills were rather scattering there, however. I do not know but the hens scratched some of them out. I took the hook and picked out a sample hill where there was a good stand, say three feet apart in the rows, and fifteen or eighteen inches between the plants. Friend Hilbert is up to the times, and cuts his potatoes to one eye, or perhaps two. In that whole region they practice level culture. I took just one hill for a sample, and to my great joy and surprise I found 13 great whopping Early Rose potatoes, beautiful in shape because the soil is so soft, fine, and yielding that the potato could develop exactly as it does under the straw in our orchard. Thirteen clean smooth large handsome potatoes, and more hills all around just like it. I marched into the house and back into the kitchen where I found friend Hilbert, and commenced:

"Mr. Hilbert, what did you put on that potato ground out by the barn where these grew?"

"I did not put on any thing — no manure nor fertilizer of any kind."

"What crop did you have on last year?"

"Let me see—I think it was corn."

"Well, what did you have on the year *before* that?"

"The year before, I had a nice crop of strawberries there, and the ground was well manured for them. It gave us a nice crop of corn, and now you see it is giving us some very fine potatoes."

"Very *fine*? I should say so;" and I held up my thirteen potatoes. "Why, that crop will make 400 bushels to the acre where I dug these."

While the women were cooking the potatoes I wanted to raise the lid of the kettle once in a while and see how they were turning out. I often do this at home, but I did not dare to take the liberty there; but when they were put on the dinner-table, weren't they fine? Well, I had not ridden a wheel before dinner, but we had been out fishing, and we had had *wonderful* success. Let me see. Friend Hilbert might say on his letter-head, after he tells about the strawberries, maple syrup and honey, "Potatoes, fish, and blackberries"—well, I guess I will not tell the rest; but those Early Rose potatoes, with the fish we caught in Traverse Bay, and some maple syrup as a kind of side issue—well, now, I tell you, were they not fine? Yes, and friend Hilbert away off there in the country has an *ice-house*, and a bright smart little girl whom they call "Erna" (how I did start and look around when somebody called out, "Erna"!) who makes the nicest ice-cream you ever thought or heard of.

Were it not that this is in the department of High-pressure Gardening I might tell you something about the fish; but I will say this much, anyhow: The result of our fishing was between 50 and 75 pounds of white fish.

The day I came away Mrs. Hilbert took charge of about a dozen girls and women picking blackberries. While the women-folks were picking the berries a seventeen-year-old son, with another boy to help him, went out to take in the gill-nets; and in the afternoon friend Hilbert, with his smart ponies, was to take a load of fish and blackberries to Traverse City. Now, here is *another* object-lesson from that Elmwood fruit-farm. Every load of stuff he takes out is *sold* before he starts. His ponies run it right into the city double quick. He unloads and goes right back home to attend to business. This is accomplished by means of his telephone. I was a little surprised to see a telephone-wire running away off something like ten miles into the country. With this telephone he informs them in town what he has got, and they all know by past experience what kind of stuff he brings to market, and then they make their offers. If any grocer or fruit dealer has a call for something, he just phones friend Hilbert, and out it comes. That telephone saves him dollars (I might almost say, every day) in time.

Friend Hilbert, like most other bee-keepers, is a genius. He has an evaporator of his own invention for making maple syrup; and judging from the syrup I should call it a big invention. He has not any on hand now, for every one of his 540 gallons was sold as soon as made, and he has lots of orders for more.

Now, don't all of you get an idea that either friend Hilbert or myself have some land to dispose of in the Traverse Peninsula. It is the man as well as the locality. When I first entered the home I saw the *Rural New-Yorker* spread out on a stand in the sitting-room. Later I asked him how many people in that vicinity took the *Rural*. He said he did not know of any who took it. The publishers had asked him to try to get up a club there, but his neighbors said they could not afford it; and if you would look at a potato-field almost adjoining his own you would be led to think *perhaps* they could not afford a dollar for an agricultural paper. Many people would call the peninsula a poor place to grow potatoes.

Of course, there are advantages in the way of a cooler climate than we have here in Ohio, in a soft mellow loam—that is, in the hardwood land where there is enough clay to make the sandy land productive. Mr. Hilbert has got his land acre by acre into a high state of fertility by carefully saving all his manure and turning under clover. I believe the locality is not favorable for cattle or sheep; therefore they do not secure the amount of manure here in grazing that they do in the butter and cheese localities of Ohio and adjoining States. Mr. H. says it is a fact that their soft loamy soil does not hold manure as it does here in Ohio, and that humus must be furnished by turning under clover or other green crops. There are people in the vicinity (I came pretty near saying *farmers*) who undertake to raise potatoes

on the same ground year after year without clover or manure of any kind, and it is just depressing to look over such places. But this is true more or less almost everywhere. I felt attracted to the locality because of the cool climate, the loose soil that seldom if ever needs undraining, and its particular adaptability for potatoes, strawberries, buckwheat, and clover when managed intelligently.

MORE ABOUT THE SUMMER OUTING IN THE MUSKOKA REGION.

In view of the general interest in regard to this article, especially during the past season, I have asked Mr. Grainger to write up their trip from the point where I left off. We can give him credit for one thing—he gives a truthful and honest statement of the discomforts as well as the enjoyable things of the Muskoka lakes and islands. In the write ups we generally get, there is not much said about mosquitoes, especially where the object is to get people to patronize the boats and railroads.

We had received the hearty handshake, and the fervent "God bless you, boys," and our pleasant outing with A. I Root in the backwoods of Muskoka was a thing of the past. It did seem too bad that he should have to leave us just when he appeared to be receiving some benefit from the trip, for we had noticed of late he had been doing ample justice to the large quantities of porridge, plates of fish, beans, potatoes, coffee, etc. A story might be told of some black bass and coffee which mysteriously disappeared after some one had said, "Not any more for me, thank you."

As we paddled away from the wharf we played, as a parting message on our cornet, "The Sweet By and By" and "Lead Thou me on;" and as the last notes died away, the strain was taken up by voices across the lake, and quite distinctly we heard the words as we paddled back to camp.

We had hoped to use the sail but the wind shifted around and blew a gale from the opposite direction, so we had head wind all the way. We were a little anxious about a fire we had left burning in the morning, but were very much pleased on reaching our camp late in the evening, tired, hot, and thirsty, to find everything all right. We were not long in getting into the water for a bath, which refreshed us greatly; then followed a good supper of fried fish, potatoes, beans, toast, and berries. After sundown the wind dropped, and the river was like a sheet of glass. The night was too warm to light a fire; and as the mosquitoes were troublesome we decided to spend the evening on the river. Accordingly we made ourselves comfortable in the canoe, and, paddling out into the middle of the stream, permitted ourselves to drift with the current while we listened to the echo of our favorite hymns played on the cornet. The air was so fresh, and the moonlight so beautiful, that it seemed too bad to miss any of it; but at 11 P. M., in spite of the inspiring surroundings, we retired to our tent. We felt just a little lonely at first without our companion of the past week; but that feeling did not last long, for who that really loves nature could be lonely here? Our island is almost surrounded with marsh. We have an aquatic garden, with an endless number of plants, not to mention animals, of which we have a great variety. We call it the farmyard, on account of the wild ducks being so numerous. They are getting quite tame, and often come quite close to our tent. While we were at breakfast this morning (Monday) a crane was walking about in our duck-pond, with his characteristic stride, looking for his early morning meal. Very often the "quack, quack" of the ducks is relieved by the coarse gruff croaking of immense Muskoka frogs, noted for the excellent qualities of their hind quarters, nicely browned in the frying-pan, with butter, etc.

Later in the evening we heard the welcome and rather musical notes of the whippoorwill. When at last we are just about to draw the curtain, and close the tent for the night, a last look out to see if our fire is all right generally reveals five or six bats making their apparently aimless flight. Of land animals we have a goodly number. At the back of our island there is what is called a deer-lick, and the tracks to

and from this hole are quite plainly seen. Chipmunks and red squirrels come right up to our table to get the crumbs. Of snakes we have three distinct varieties, all non-poisonous and quite tame. We do not molest them, and have become quite accustomed to seeing them around—in fact, rather like to watch them. We have some large-sized lizards, and a big mud-turtle. Now, who could be lonely with such company?

Tommy was very sleepy this morning. I could scarcely get him up, and he seemed half dazed for a time. He had his shirt on wrong way about. He was puzzling to know how he buttoned it up the back—said he could not remember doing it. I suggested he put his vest on that way too. He said he would not do that, for he might get lost in the bush. I asked him what difference that would make. He said, "Why, I wouldn't know which way I was going; I should get all turned around." By the way, there is some Irish about Tommy.

We went out to explore Morrison Lake, and, if possible, gather berries. The day was very hot, and the deer-flies were so bad in the bush that we were forced to retreat without the berries. We went to see Mr. Armstrong, a settler on the lake, from whom we got a fresh supply of butter and a great deal of information. He told us we could get into Morrison Lake from the railway, by road, only six miles distant, and good enough for a bicycle. We also found that we could portage from Morrison Lake into several other lakes where there is splendid fishing. We decided, as there seemed to be so many advantages in this part of the country, to purchase a place here if possible, and make it our headquarters. We spent the evening with a party of campers from Orillia; had a very pleasant time on the river in the moonlight, as usual, with the cornet for company. The moonlight nights here are magnificent, as it is so quiet and restful. Outside of the occasional call of the whippoorwill, and the music of the rapids in the distance, there is perfect quiet. The least noise can be heard a remarkably long distance. The notes of the cornet echo from rock to rock, five or six times. Each time it seems further and further away, till at last it dies away entirely in the distance. The effect is very beautiful, and, together with the hazy, shadowy appearance of the river-banks reflected in the moonlight, gives it all a strange and weird though very charming effect that lives long in the memory, and is not the least of the many pleasant effects peculiar to this most desirable summer resort.

To-day (Tuesday) the wind got up about 7 o'clock as usual. After a good breakfast we started out to explore the islands in Morrison Lake. We put our fishing-tackle in the canoe, also a lunch (quite a bulky parcel, by the way) considering there were only two in the party. We also took along our largest tin pail so that we could have some hot coffee. Our way was up the Morrison River, over two portages. I wish I could describe Morrison River. It is a narrow stream, very winding; the banks are lined with green trees, ferns, and wild flowers. Every turn in the river presents a new scene of verdant beauty. Aquatic plants find a congenial home here. In fact, one has almost to push the boat through beds of purple willow-herb (the celebrated honey-plant), pretty pink marsh-nettle (*Slachys palustris*), flowering fern, arrowhead, and thousands upon thousands of sweet-scented water-lilies (*Nymphaea odorata*). There are also yellow water-lilies in great abundance, and deer-grass with its pretty pink blossoms. From Morrison River we made our way into the clear waters of Morrison Lake. Here we threw out our trawling-line; and as the wind was favorable we put up our sail. This was very pleasant, and we were getting along nicely when we discovered we were driving straight on to some rocks that were partially hidden. Tommy tried to draw in the trawl and guide the boat at the same time, while I tried to get down the sail and keep the boat off the rocks with my paddle. My paddle dropped overboard, and in the midst of the excitement Tommy announced the fact that the trawl was caught on a rock. First we secured the paddle, got the sail tucked away, and were drawing in the line when we discovered that, instead of having a rock on the end of the hook, we had a beautiful fish. When landed it proved to be the largest fish taken to date. After that we made for the island, ate our lunch, and then prepared to investigate. We were paddling slowly around the north side of Island B, and we noticed that the bushes appeared to have a bluish cast. We soon landed, and were delighted to find the rocks just covered with blueberries. We did have a feast. After we had eaten all we wanted we filled our largest tin pail with them. Further on toward the center of the island we discovered a

beautiful patch of red raspberries; but as we had nothing to put them into we had to leave them. The island is beautifully wooded, and so nicely situated, a short distance from the main land, with nice sandy beach suitable for bathing, and very desirable in many respects, we decided there and then, if possible, to purchase it.

It was now getting dark, and we started down the river for camp, which did not prove nearly so charming in the moonlight as we had expected. The mosquitoes were simply dreadful. We had almost to fight our way through. The noise they made was like bees swarming. We managed to cover our heads with our handkerchiefs, but they went for our hands so bad that we could scarcely paddle. We got through at last, minus the blood we left behind, and prepared to get supper. We were much disappointed to find the mosquitoes around our camp in great numbers, apparently waiting for what was left of us. We found it necessary to build a large fire, which drove them off; then we ate a good hearty supper in peace. During the day we did not notice any mosquitoes at all, but have learned by experience that it is not wise to explore marshy places after sundown.

Wednesday.—It was very windy to-day; rested all morning; saw no boats passing our camp. The wind was so high that no one cared to venture out; went for a long walk in the woods, picking flowers, eating berries, and amusing ourselves generally. Went fishing in the evening. Tried fishing by moonlight for the first time. Caught one pickerel and several very large catfish. One was so large it broke my pole as I was landing it.

While fishing we were surprised to see a man with a heavily laden canoe coming right down through the rapids. Evidently this was a common thing for him to do. He just looked up, said "Good evening, gentlemen," and was gone. We decided if he could go through so nicely we would try it too, when we made our trip down the river to see the electric works. It may be that the scraps we threw away after meal-times, or the situation is most favorable, but certainly this place seems to be the favorite haunt of all kinds of animals and insects. They are very friendly, and have a rather free and easy style about them which is rather embarrassing at times. They have a way of dropping around, not only at mealtime, but also at bedtime. Besides six distinct kinds of flies, all of which are much more active and industrious than the common house-fly, we have large black ants, wasps, hornets, and beetles. Then the snakes seem to be more numerous, and we have become quite interested in watching their habits. But then there is a limit to one's enthusiasm along that line, for, no matter how much one may be interested in natural history, he naturally objects to having the subject for a bedfellow. Last night, when we returned from our fishing-expedition in the moonlight, we found a large-sized snake trying to make his way into our tent. So far we had not molested the snakes; but we felt the line would have to be drawn somewhere, for the thought of having even harmless snakes, between three and four feet long, crawling over one while asleep is not calculated to produce pleasant dreams. We chased that fellow and tried to kill him, but he got away. The first thing in the morning, however, when I opened the tent I discovered him back again at the same place. This time he was promptly despatched. As I write, a small every day ordinary little toad has hopped up on the rock beside me; and as he looked so home-like and familiar I decided to let him stay and watch him catch flies, and hope with all my heart that he will catch them all.

Thursday.—To-day we decided we would pay a visit to the Ragged Rapids, where the citizens of Orillia are investing \$75,000 in an electric plant to supply their town with light and power. We set out after breakfast, taking our lunch and fishing-tackle as usual. To get there we must either shoot the rapids or carry our boat over a long portage. We had heard that the dam was almost complete, and we could see that the water was rising even up where we were camped, as the little wharf we made to land our boat was now covered with water. As we approached the rapids between our camp and the works, we debated whether to shoot the rapids or carry the canoe over the portage. I said I did not think it was right for me, with a wife and three little children, to run any risks; but then the weather was so hot I just hated to carry that canoe over that rough, rocky path, so we decided to have a look, and, if thought safe, would go down. After a little consideration we decided to risk it. Accordingly we headed our canoe right for the center of the stream, and in two seconds were in the

center of the rapids, paddling for all we were worth, and going at a terrific speed. It is a very peculiar and rather pleasant feeling, just as one enters the quick water. The canoe seems fairly to leap through the water. It is just dangerous enough to make it exciting. The great point is to avoid sunken rocks, where the jagged edges come nearly to the surface; also to keep the canoe from getting sidewise. I do not know of any thing that is as much like it as tobogganing down a steep hill. My! how we wished our friend A. I. could have enjoyed that little trip through the boiling surging waters. As we got through safely, we were, of course, glad we had not carried our canoe over the rocks. A paddle of about an hour brought us to the works, which we found much more extensive than we had expected. The ragged rapids are much more picturesque than Nos. 1 and 2. The banks of the river at this point are very high and steep, and a great deal of hard work was done before the dam was made and the water brought under control. The arrangements for conducting the water to the wheels that drive the dynamo are very similar to those on the Canadian side of the river at Niagara. We found a great many excursionists down there, among them a party of about twenty Americans. We noticed some of them wore the uniform of the United States army. There were also several ladies who appeared to be very much interested in watching the men on the opposite side of the river making preparations for blasting the rock. After a good look at the works we decided to go back to rapids No. 2, have our lunch, and try for some fish. There was a strong west wind blowing, and with the help of the sail we were soon back to our favorite fishing ground. Tommy gave me both lines to look after while he made a fire and some coffee. The water in the river was so warm we did not seem able to get enough of it to quench our thirst, and we were looking forward with a great deal of pleasure to having our lunch under the shade of a tree, with a big can of coffee, which was now just about ready. I suggested that Tommy put the can partly in the water to cool it quicker. That proved to be a very unfortunate suggestion. I saw Tommy start for the river-bank, with the steaming coffee in his hand. The next time I looked he was gazing at the empty can. I said, "What's the matter?" He said nothing, looked at the pail, then looked at me. I said, "Well, what are you going to do about it?" but he just looked at the pail, and looked at me. I don't know that I ever wanted coffee as badly as I did then; and to see all that beautiful coffee dumped in the river was tantalizing in the extreme. Tommy, in going to the river, slipped, dropped the coffee—that was all.

Friday.—To-day ended our holiday. From this time on it was work. We had six large sacks to fill with sphagnum moss, so we got our breakfast over early and prepared for work. With our sail set, and a good wind, we were soon skipping over the water toward the sphagnum swamp. After a little searching we found the patch, and got a fine lot gathered and carried out on to the rocks. It was hard work, and hot, and by night we were just about played out; and, oh my! so thirsty, for we could not drink the water in the swamp. To get back to camp we had to go through or past rapids No. 1, which are considered more dangerous than No. 2. It was late, we were tired, and we knew that others had shot these rapids lately, so we decided to try it. We let the boat partly down, however, with rope, and threw in our lines for some fish. After catching a few we got into the canoe and started down the rapids. We went pretty lively for a time; and just as I had decided we were out of danger, and had stopped paddling, a sudden under-current caught the front of the canoe and gave it a terrible jerk sidewise, nearly shooting me out over the front, and all but upsetting us into the river. We got through all right, however, and felt very thankful indeed that we had not been spilled into the rapids. So far as I know, the two boys from Buffalo and ourselves are the only parties who have shot rapids No. 1, this season.

Saturday morning.—Up at 4:30 A. M. packing up preparing to move our camp. In some respects we were not sorry to leave, for our neighbors, the wasps, snakes, beetles, etc., were becoming almost too familiar, and we were forced to come to the conclusion that even this paradise was not exactly perfect, any more than was Adam's; for, although he had Eve coaxing him to eat forbidden fruit, he probably did not have flies, wasps, and mosquitoes, in such large numbers to bother him. We were commencing to think that it would be very nice if we could have two of Eve's daughters, whom we might mention, along, with all their faults ("sour apples" and all), if only to have

one decent meal, cooked *right*, and *ready* for us when we came home tired after work. After all, it is *not* good for man to live alone—that is, not for very long.

We stitched up our sacks of sphagnum, ready for shipment, and paddled away down the lake to the steamer's wharf, but could not induce the captain to go down the river for our moss. By this time the wind had risen and the lake was very rough. We had all our things in the canoe, a rather heavy load, and it was all we could do to make Monahan's Point, on the river, where we decided to camp for the night. We were so tired when we reached the shore that we just piled our things on the bank of the river, got our blankets, laid down under the shade of a large maple-tree, and were soon fast asleep. After some time had passed I awoke to find that the weather had changed. It had turned cooler, and a thunderstorm was coming across the lake. I aroused Tommy, and we started in a great hurry to put up our tent; but before we could get it up the storm struck us. The wind was terrific, and the rain fairly poured down. We got our tent partly fixed, when a sudden squall struck it, and down it came with a crash. By this time we were soaking wet. I happened to think of my blanket, and covered that up, so that I could have a dry bed. We got the tent up at last; put our things under shelter, then proceeded to make a fire, stretch a rope around it, and hang up our wet things to dry. For a time it looked very much like washing-day; but in a little while, with the aid of the wind and the fire, our things were dry. There were three other camps, near ours, and we soon made the acquaintance of our neighbors, who proved to be very friendly, and helped us very much. There were four ladies in the party, and very agreeable company they proved to be too.

We were up bright and early in the morning, and took a look around the point. This is a very beautiful place, and a favorite spot with campers. There are no mosquitoes, wasps, snakes, or other troublesome companions here. The only objection to this place is that it is too far away from the good fishing grounds. I noticed a change come over Tommy when he found there were ladies in the neighboring tents. He commenced at once to "slick up," first by shaving and then putting on his clean clothes, and fixing things up generally. After a long searching scrutiny of himself in the glass, or, rather, as much of his face as he could see in the small one we had with us he grabbed a pail, and said he was going to the farmer's to see if he could get some milk. I noticed, however, the sudden move was made just after one of the young ladies from camp No. 4 started with a pail on a similar errand. Strange to say, they returned together, chatting like old acquaintances. By this time all the campers had become well acquainted, and commenced exchanging notes, etc. We told the ladies our difficulties with the pancakes, for, try as we would, we could not get them right. When they were burnt on the outside they were dough in the middle. They very kindly offered to help us out, under one condition—namely, that we make enough pancakes for the entire party, and come and dine with them. Of course, we con-ented, and the pancakes were started. They proved a real success. We had a most enjoyable time together. Camp No. 2 had two lady visitors from Orillia, relatives of the Postmaster General. They brought with them several little delicacies—cake, watermelon, etc., which were very much appreciated. We spent a very enjoyable evening, with music and stories around the campfire, until a late hour, then retired.

We were up bright and early in the morning, and after a hard paddle succeeded in getting our six bales of sphagnum to the wharf; then a brief and reluctant farewell, a hurried packing-up, and we were off down the river to the railway station. Late in the evening we landed in busy bustling Toronto again.

Toronto, Aug. 23.

E. GRAINGER.

EXPERIMENT-STATION WORK.

The above is the title of Farmer's Bulletin No. 119, from the Department of Agriculture. It treats of storing apples without ice; cold storage on the farm; mechanical cold storage for fruit; keeping qualities of apples; improvement of blueberries; transplanting muskmelons; banana flour; purslane, etc. It will

be sent free on application to the Secretary of Agriculture, Washington. I was particularly interested in the article on purslane (or "pusley"), first, because it can be used for food; and, secondly, that it is valuable to plow under. Our early potatoes were all planted together in order that they might give us the ground for something else all in one piece. The first to ripen were the Triumphs. I do not think they ripened, however. They blighted on account of the excessive heat; but just as soon as the ground was clear, pusley came up and grew wonderfully. Before I knew it, one could hardly tell where the potato-rows were. But the other kinds that covered the ground with green foliage kept the pusley down. However, it kept coming as fast as the potato-vines died. Now, I do not like to dig potatoes during hot weather in August—that is, where they are to be kept over for seed; neither do I like to have my ground seeded so tremendously with pusley; therefore I told our people we would have to dig the potatoes and put them in the cellar. The Dowden digger, somewhat to my surprise, laid the potatoes on the ground all right in spite of the loads of pusley that were on top. In some places a boy had to walk ahead of the digger to show the man where to drive. In picking the potatoes up we had to kick the great clumps of vines to one side. As soon as the potatoes were all dug we turned the pusley under, and we are going to keep the ground harrowed every few days until time to sow the wheat. It is so early I was almost inclined to try sowing Canada peas with buckwheat and crimson clover, letting the clover come up through the peas and buckwheat after the frost has killed them down. I am almost afraid, however, to risk crimson clover any more in September, even if protected by buckwheat or something of that sort; and I certainly want my ground covered with *something* green all winter—every foot of it.

BELGIAN HARES.

By scanning our agricultural press I find the reports are very conflicting in regard to Belgian hares; but the general impression is certainly not in favor of the fancy prices at which they are at present held. And may I suggest another very important fact that people seem to lose sight of? Granting that their meat is equal to chicken, and that they can be raised as cheaply, pound for pound, please do not forget, friends, that Belgian hares *do not lay eggs*. Possibly we could afford to raise chickens, even if they were all roosters, simply for broilers; but I tell you there is no other industry in the whole wide world that furnishes wholesome food at so small a price as the egg industry. The great bulk of the eggs in market come from fowls that roam at large. There are many reasons why Belgian hares can never roam at large as chickens do.

ARE THEY AS GOOD AS CHICKENS?

From an article on the subject in the *Rural New Yorker* we extract the following:

We kill and eat them at any time of year, just as we do chickens or any other farm stock, and we have

never kept any thing that has given less trouble and more profit. . . . The meat is very much better than that of wild rabbits, and many consider it better than chicken.

INDIA RELIEF FUND.

E. Pickup, Kasbeer, Ill	\$4 00
O. L. Sawyer, Gardiner, Me.....	1 00
J. B.....	5 00
E. J. Eaton, Genoa, Neb.....	40
Eliza Baker, Parkers Prairie, Minn.....	1 00
W. P. Dunlap, Apalachicola, Fla.....	5 00
E. L'Hommedieu, Colo, Iowa.....	1 00
Edw. L. Bump, Delavan, N. Y.....	50

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.	
Postage.]	[Price without postage.
8 Bible, good print, neatly bound	20
10 Bunyan's Pilgrim's Progress**	40
3 Christian's Secret of a Happy Life,** 50c; cloth 1 00	
3 John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1 Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper.....	5
2 Same, board covers	20
5 Same, words and music, small type, board cov. 45	
10 Same, words and music, board covers.....	75
3 New Testament in pretty flexible covers.....	05
5 New Testament, new version, paper covers.....	10
4 Stepping Heavenward**.....	18
5 Tobacco Manual**.....	45
This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.	

BOOKS ESPECIALLY FOR BEE-KEEPERS.

20 A B C of Bee Culture, cloth.....	1 00
Advanced Bee Culture, by W. Z. Hutchinson ...	50
3 Amateur Bee-keeping, by J. W. Rouse.....	22
14 Bees and Bee-keeping, by Frank Cheshire, England, Vol. I, §.....	2 36
21 Same, Vol. II, §.....	2 79
Same, Vols. I. and II., postpaid.....	5 25
10 Bees and Honey, by T. G. Newman.....	65
10 Cook's Manual, cloth.....	1 15
5 Doolittle on Queen-rearing	95
2 Dzierzon Theory.....	10
3 Foul Brood; Its Natural History and Rational Treatment	22
1 Honey as Food and Medicine	05
10 Langstroth Revised, by Chas. Dadant & Son.....	1 10
15 Quinby's New Bee-keeping.....	90
British Bee-keeper's Guide-book, by Thomas William Cowan, England §.....	40
The Honey-bee, by Thos. William Cowan.....	95
3 Merrybanks and His Neighbor, by A. I. Root.....	15
Bienenzucht und Honiggewinnung.....	50
Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.	

MISCELLANEOUS HAND-BOOKS.

5 A B C of Carp Culture, by Geo. Finley.....	25
5 A B C of Strawberry Culture,** by T. B. Terry..	35
Probably the leading book of the world on strawberries.	

5 A B C of Potato Culture, Terry**.....	35
This is T. B. Terry's first and most masterly work.	
Barn Plans and Out-buildings*.....	50
Canary birds, paper.....	25
2 Celery for Profit, by T. Greiner**.....	25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.	
15 Draining for Profit and Health, Warring.....	1 35
10 Fuller's Grape Culturist**.....	1 15
8 Domestic Economy, by I. H. Mayer, M. D.**.....	30
This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is \$1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.	
10 Farming for Boys*.....	1 15
This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.	
Farming with Green Manures, postpaid**.....	90
7 Farm, Gardening, and Seed-growing**.....	90
12 Gardening for Pleasure, Henderson*.....	1 35
12 Gardening for Profit**.....	1 35
8 Gardening for Young and Old, Harris**.....	1 25
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.	
3 Ginseng Culture, by Morris G. Cains.....	25
3 Grasses and Clovers, with Notes on Forage Plants.....	20
This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.	
10 Greenhouse construction, by Prof. Taft**.....	1 15
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.	
12 Greenhouse Management, by Prof. Taft**.....	1 15
The book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.	
5 Garden and Farm Topics, Henderson**.....	60
5 Gregory on Cabbages, paper*.....	20
5 Gregory on Squashes, paper*.....	20
5 Gregory on Onions, paper*.....	20
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.	
Handbook for Lumbermen.....	05
5 Home Pork-making; 125 pages, illustrated.....	40
I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.	
10 Household Conveniences.....	1 40
15 How to Make the Garden Pay**.....	1 35
2 How to Propagate and Grow Fruit, Green*.....	15
2 Injurious Insects, Cook.....	10
10 Irrigation for the Farm, Garden, and Orchard*.....	1 10
By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water	

from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 Maple Sugar and the Sugar-bush**.....	32
4 Peabody's Webster's Dictionary.....	10
Over 30,000 words and 250 illustrations.	

5 Manures; How to Make and How to Use Them; in paper covers.....	30
6 The same in cloth covers.....	65
Nut Culturist, postpaid.....	1 50
3 Onions for Profit**.....	40
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.	

Our Farming, by T. B. Terry**.....	1 50
In which he tells "how we have made a run-down farm bring both profit and pleasure."	
If ordered by express or freight with other goods, 10c less.	

1 Poultry for Pleasure and Profit**.....	10
8 Practical Floriculture, Henderson*.....	1 10
10 Profits in Poultry*.....	75
1 Silk and the Silkworm.....	10
10 Small-Fruit Culturist, Fuller.....	1 10
2 Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown.....	08
10 Talks on Manures*.....	1 35
7 Ten Acres Enough**.....	75
10 The New Agriculture; or, the Waters Led Captive (a \$1.50 book).....	40

11 The New Egg-Farm, Stoddard**.....	70
This is an enlarged edition of the 50-cent book published 25 or 30 years ago by H. H. Stoddard. If I could have only one poultry-book it would be the New Egg-farm. This book is of special value to me because it not only discusses most emphatically the value of exercise to poultry, but it touches on the value of exercise to all other animated nature including humanity. The book has over 300 pages and 150 illustrations. It is entirely different from any other poultry-book in the world, inasmuch as it discusses mechanical contrivances so that all the varied operations of a poultry-farm may be done as much as possible with the aid of machinery. The regular price is \$1.00, but by buying a quantity we are able to furnish it at price given.	

2 Treatise on the Horse and his Diseases.....	10
5 Tile Drainage, by W. I. Chamberlain.....	35
Fully illustrated, containing every thing of importance clear up to the present date.	

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 Tomato Culture.....	35
In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.	

3 Vegetables under Glass, by H. A. Dreer**.....	20
3 Vegetables in the Open Air*.....	20
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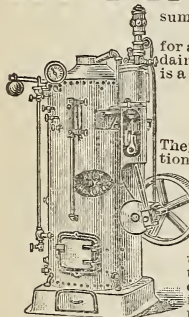
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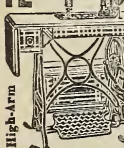
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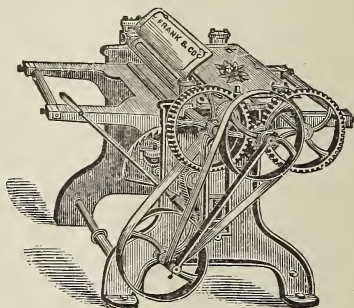
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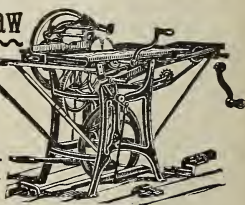
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